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UNITED STATES AIR FORCE TRAINING MANAGEMENT 2010

Volume I: Current System Description

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This report has been reviewed and is approved for publication.

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This report is part of a US Air Force sponsored study to forecast future technologies and systems required for optimally managing training in the next century. The study findings are based on the review of regulations, documents and related publications, and on the interviews of more than 70 key training management personnel at the Department of Defense, the Air Staff, major Air Force commands, and special operating agencies.

This volume of the study provides a comprehensive description of the existing US Air Force training management system and an assessment of that system's operations. Eight significant subcategories of training were examined with emphasis on the data transfer and flows supporting management decisions.

This portion of the study finds that, while individual components of the system are well managed for the most part, the fractionalization of overall system management inhibits effectiveness and efficiency. Potential improvements are suggested with understanding that achievement of these improvements must realistically be worked around specific system constraints on change.

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19. ABSTRACT (Continued)

The second volume of this study identifies environmental trends to which future training managers must respond. A suggested future training management systems architecture and developmental roadmap is presented to resolve both chronic problems and future concerns.

PREFACE

       The Human Systems Division (HSD) of the Air Force Systems Command is the principal advocate for the human operator across all weapon and support systems. The HSD Deputate for Development Planning is responsible for studies, analysis, and long range planning to identify technology gaps, deficiencies and future desired capabilities. This requirement identification process provides the basis of guidance and justification for human systems research and development. Training is one of the human centered activities for which HSD develops technology and is a keystone in readying the human operator for mission accomplishment. (54:1-3) The overall goal of this study is to identify the technologies and systems needed to optimize the information and decision functions of Air Force training management by the year 2010.

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VOLUME 1. CURRENT SYSTEM DESCRIPTION

I. INTRODUCTION

    A. BACKGROUND

    Training is one of the four principal functions of the US Air Force
(USAF) (1:4-6). Training is also the vehicle that forges capable individuals
into effective fighting units (30:96). When not engaged in actual combat, the
whole USAF can be viewed as "in training" to prepare for war.

    Since training can be sponsored at all organizational levels throughout
the USAF, no one knows the exact number of USAF training activities (55:22-1).
Last year at least half of the total USAF was involved in some aspect of
training ranging from short-term skills upgrading to multiyear professional or
technical development programs. There is no single activity within the USAF
with as many diverse and varied aspects as training (29:1).

    Training managers continually weigh many inputs in deciding how to best
acquire properly trained personnel to ensure mission success. The major con-
straints management deals with on a daily basis include policy positions
(national and military), mission requirements, manpower pool availability,
funding, career development, and technology. Frequently, one or more of these
factors can undergo rapid change or redirection which require major revisions
to both short- and long-term training goals (29:1-2).

    This study is intended to help determine the shape of tomorrow's USAF
training management system and the best course of development towards the
future. The specific objectives of this task are to: (a) identify the prob-
lems and opportunities facing USAF training management over the next 20 years,
(b) develop a conceptual architecture which maximizes the effectiveness and
efficiency of USAF training management in the year 2010, (c) use that archi-
tecture to identify critical technology and system shortfalls, and (d) provide
a roadmap for resolving those shortfalls by the year 2010 (29:1).

    B. APPROACH

    The effort to accomplish these objectives is broken down into two indi-
vidual subunits. The first subunit describes the existing training management
system and assesses the management process noting issues, potentials, and
constraints; the second objective identifies, projects and proposes solutions
to chronic training management problems and future developing issues.

    This first volume of the study report describes the effort of the first
subunit which identified the process and organization by which the USAF man-
ages the training program today. Military, job specialty, and ancillary train-
ing for both officer and enlisted personnel is reviewed. Factors such as
number and type of slots, individual assignment, movement, training utiliza-
tion, specialty building, cross-training, quotas, career development, and
other factors are reviewed and described.

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Specific elements such as training need projections, resource allocations, distribution and redistribution of trained personnel, interfaces with other resource management systems, and contingency planning are examined. This review establishes the organizations involved in these processes, the source of their information, how they use their data, and how they interface with other agencies and organizations.

Based on the functional definition and current management studies, information/decision flow models are developed to identify the types of decisions being made and the organizations making the decisions. The flow models indicate the source of the information required for the decision and how the information is obtained. Flow diagrams are developed depicting how various types of decisions are made and implemented.

With the identification of the functional aspects of training, the review of current management, and the flow model/diagrams in hand, an assessment of the current training management process is accomplished. Impact on mission effectiveness, efficiency of operations, existing constraints, problem areas, and potential improvements are examined. This assessment identifies gaps in the current training management system and provides a baseline for the second subunit of the study, i.e., projecting USAF training management needs to the year 2010 and proposing the most promising procedures, technologies, and systems to meet those needs.

The data sources for the analyses come from relevant literature reviews and structured interviews with key training managers. A list of the regulations, documents, and publications used may be found in the Reference Section. The more than seventy interviewees, listed in Appendix A, were drawn from the Department of Defense (DOD), the Air Staff, and from more than seven major commands (MAJCOMs) and special operating agencies. The interviews were conducted on a nonattribution basis. The interview guide is in Appendix B.

The depiction of the data flow analysis is based on the Yourdon system of structured analysis (41:1-339). Flow diagrams, as in Figure 1, are used to indicate data inputs and outputs, processes, and responsible agencies. This graphic presentation sets the baseline for the subsequent structured architectural specification in phase II of this study. The inclusion of agencies is a deviation from the pure logical presentation of the Yourdon system, but is felt necessary for communication with our readers. Additional detail on the approach methodology may be found in the study research plan (46:1-22).
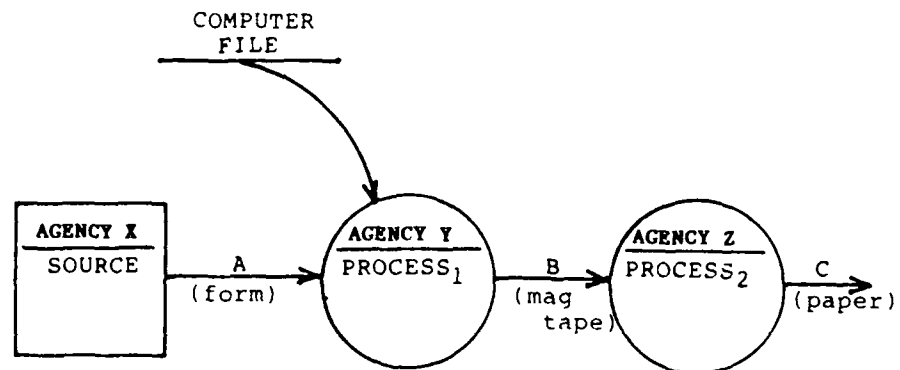
FIGURE 1. Structure analysis diagram.

II. US AIR FORCE TRAINING SYSTEM

A. OVERVIEW

1. Major Training Categories.

For ease of understanding, USAF training is divided into three basic categories (as shown in Figure 2): (1) military training that provides cus toms, organization, doctrine, strategy, team orientation, and leadership skills peculiar to an armed force; (2) job specialty training that provides the technical skills and knowledge for performance of specific occupational duties (e.g., pilot, maintenance technician, or security policeman); (3) and ancillary training that does not immediately fit into these first two basic categories.

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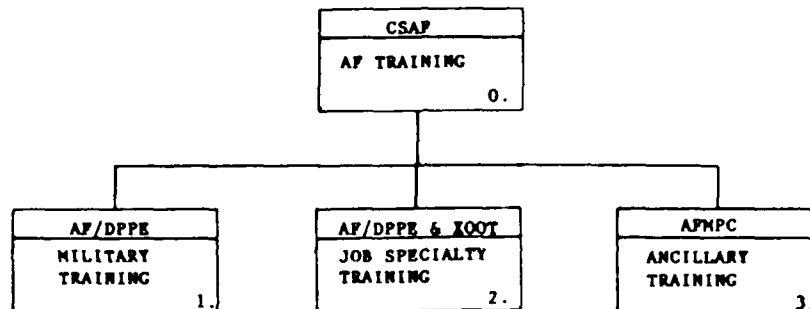
Figure 2. Basic categories of training.

One has to go to the office of the Chief of Staff of the US Air Force (CSAF) to find a hat under which responsibility for all training resides. Below that, responsibility is divided among the Air Staff offices of AF/DPPE, AF/XOOT, and the Military Personnel Center (MPC). Air Force DPPE oversees all military training, and shares responsibility with AF/XOOT for various job specialties training. Military Personnel Center DPRT is responsible for ancillary training (55:22-15).

Complexity quickly occurs as we examine how the USAF is organized to manage these general training categories below the Air Staff level (Fig.3). As an individual progresses through the training system crossing from one organizational turf to another, responsibilities change and different nomen-clatures are adopted. The nuances, as important and reasonable as they are, between resident vs. on-the-job training (OJT), accession training vs. professional military education (PME), and flying vs. technical training, can obscure the simple continuity of the three general training categories.

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The next level in the breakdown of the training hierarchy introduces four new subcategories of training. The associated nomenclature that follows is more commonly employed within the USAF training system.

While, theoretically, flying training is a type of job specialty training, the Air Force gives it such special management attention that its being singled out with unique emphasis is understandable when one considers the apex of the flying mission and the extreme costs associated with training pilots and navigators. Air Staff management of flying training is shared between AF/DPPE and AF/XOOT.(55:22-1; 22-12). The remainder of job specialty training is referred to as specialized skill training. The focal point for Air Staff oversight is AF/DPPE. In practice, military training occurs in several phases. An initial or basic military training (BMT)is offered to all incoming personnel with follow-on professional military education commensurate with their progressive leadership responsibilities during their careers.
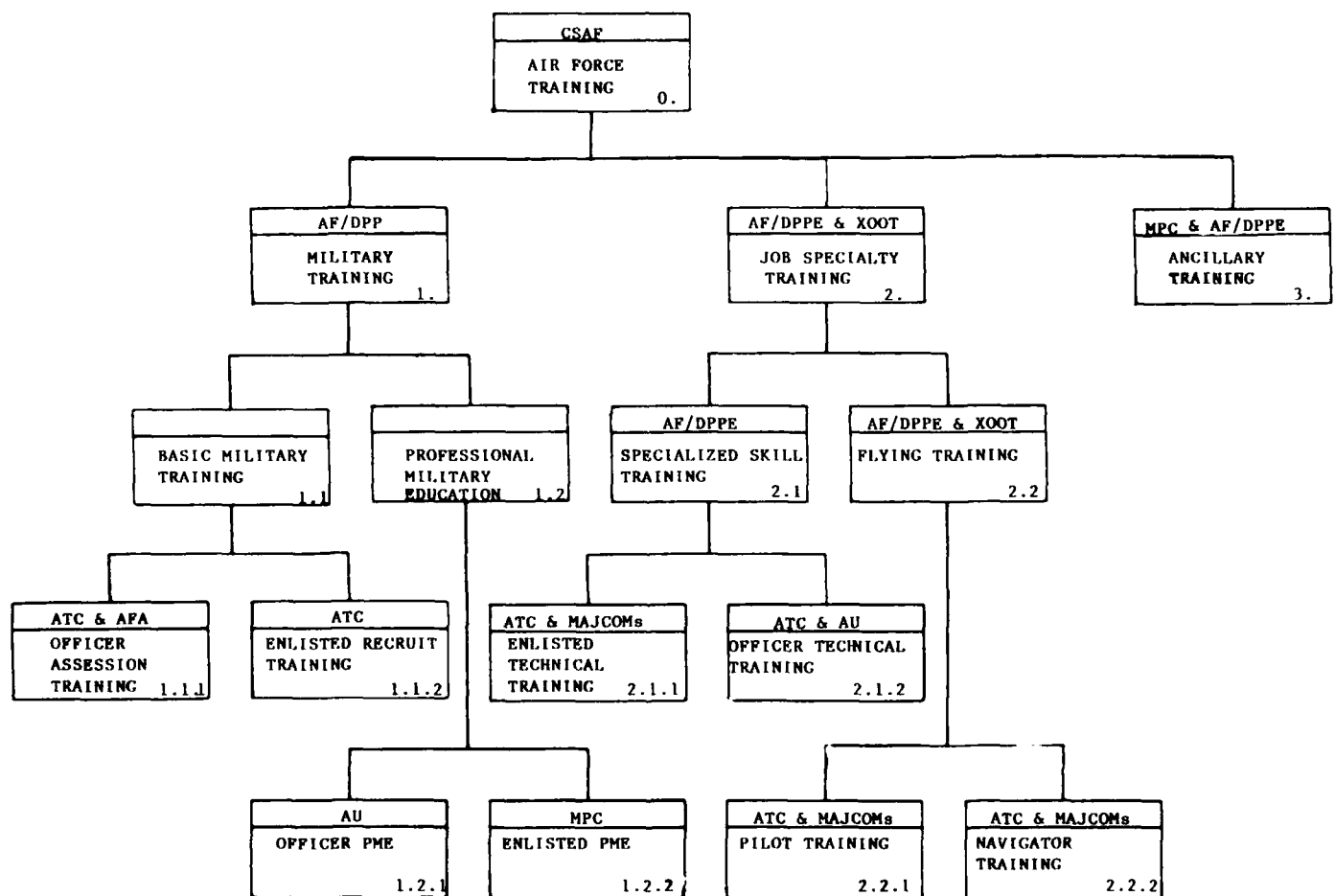
Figure 3. Training hierarchy - level three.

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Congress and DOD use these same four subcategories as part of their oversight organization. One exception is that BMT is further fractionalized dinto enlisted or recruit training and precommissioning or officer accession training (52:I-4 to I-5).

Completion of the lower part of the hierarchy identifies training elements that receive, to at least some degree, independent management in the USAF. Professional military education (PME) is organized separately for officer and enlisted personnel. The Air University manages officer PME, and MPC enlisted PME. Likewise, officer and enlisted specialized skill training has a separate organization with the enlisted technical training far more tightly managed. Flying training is divided into pilot and navigator divisions. Along with ancillary training, these eight lower hierarchy training elements are discussed in depth in section IIB.

2. Major Management Functions.

There are four major management decision functions that evolve around each training endeavor. These functions involve management of the training requirement, the students, the curriculum, and the training resources.
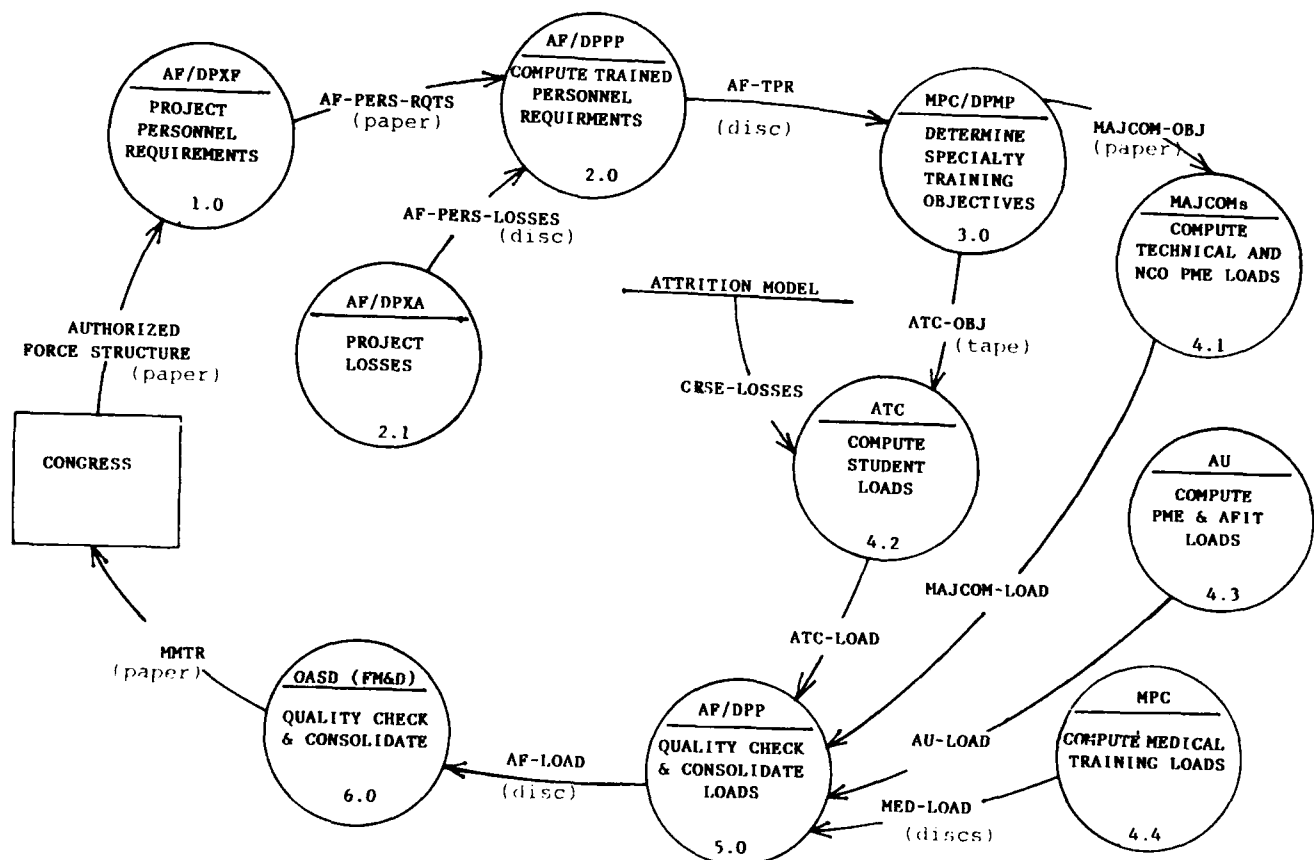
Figure 4. Requirement identification and reporting – Air Force

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a. Requirement Management. The basic operative in any training activity is the determination of how many graduates of what kind need to be produced from the training plant. For a large part of the USAF training system, this identification of numbers and kinds is globally managed at the Air Staff and reported by DOD to Congress via the Military Manpower Training Report (MMTR) (52:1) (Fig. 4).

The training requirement is intimately related to the personnel requirements of the force. The Air Staff (AF/DPXF) determines the number of personnel needed to operate and support the force structure approved by Congress. Subsequently, AF/DPPP computes the number and kinds of graduates needed which is described in the Trained Personnel Requirement (TPR). The TPR is determined by taking the current force, projecting losses from retirements, separations and other reasons through a loss model, and computing the resultant need for newly trained personnel to fill current and anticipated vacancies. The TPR is passed to the formal training activities to compute the student load for each type of specialized skill, initial flying, PME, the enlisted recruit, and most officer accession courses. The computation is based on course attrition models that allow managers to gauge student input workload so as to account for failure of entrants to graduate, and, thus, meet graduate production goals. The student workload is formally computed for each course as follows:

$$\frac{Entrants + Graduates}{2} \quad X \quad Course\ Length = Load$$

(52:I-5 to 6)

The training activities then pass their workload computations back to the Air Staff for consolidation, analysis, and budget reconciliation. The Air Staff then forwards the workload data to DOD for analysis, budget reconciliation, and consolidation with the other sources. The final product is the annual MMTR which is submitted to Congress.

This requirement determination and reporting process is only for formal or resident training activities, i.e., training conducted by organizations whose sole mission is training and education. Operational field units who have primary war fighting missions also conduct a significant amount of training. The structured process of requirements identification and reporting for these field units is as diagramed in figure 5 with additional detail in Appendix C. The Pipeline Management System (PMS) which handles storage, processing, and retrieval of training data is discussed in section IIC4.
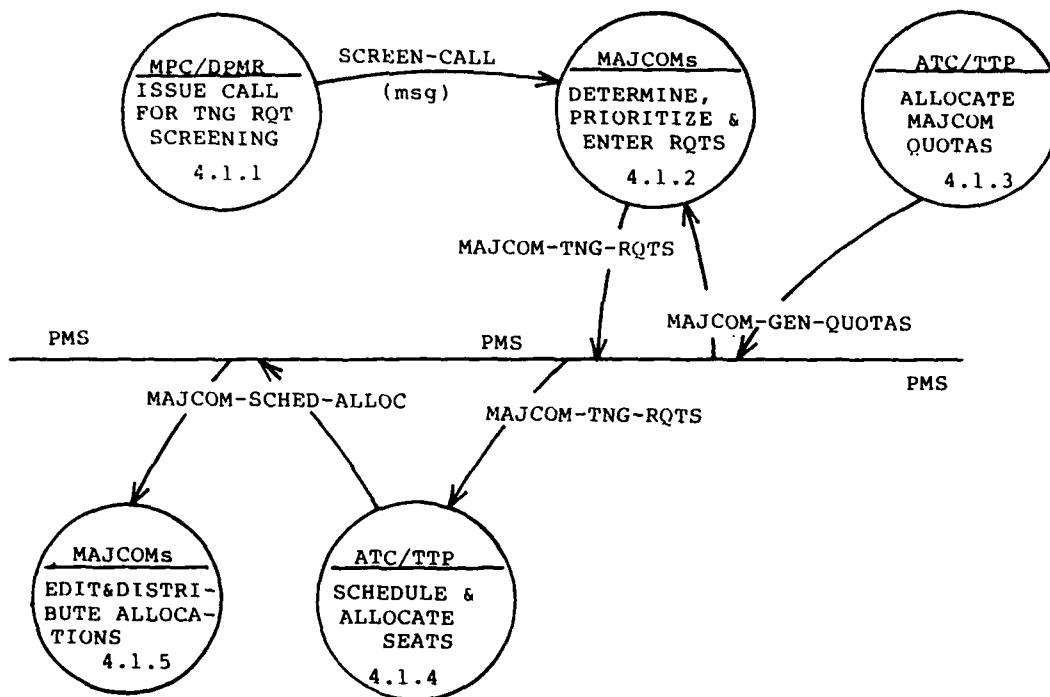
Figure 5. MAJCOM training requirments screening.

b. Curriculum Management. This function involves identification and evaluation of the specific learning objectives, methods of instruction, and selection of media. While individual training element managers execute their particular curriculum management with varying Air Staff oversight, the USAF has standardized a systematic process called Instructional Systems Development (ISD) (8:1-5). Instructional Systems Development is a structured but flexible process for implementing training technology in curriculum development. Using a five-step interdependent model illustrated in Figure 6, the ISD process enables instructional designers to determine the need for training and then to systematically build an instructional program to satisfy training requirements.
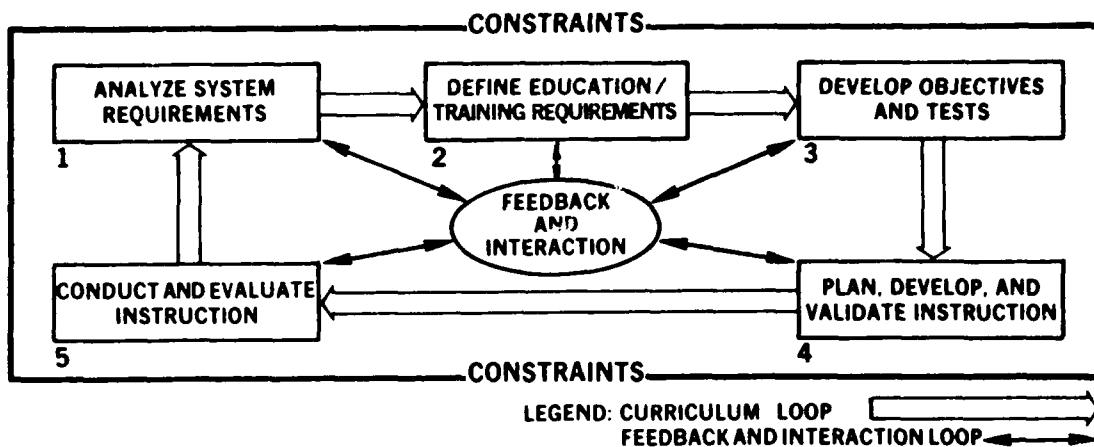
Figure 6. Instructional systems development model (AFR 50-8).

The Air Staff Systems/Specialist Training Branch (AF/DPPES) is the focal point for ISD policy. This office has the responsibility for coordinating with other Air Staff functional managers to ensure the use of ISD in system acquisition or modification programs. Program Management Directives with training requirements are received by AF/DPPES which in turn facilitates ISD crossfeed between MAJCOMs, reviews USAF progress in applying ISD, and ensures compliance with ISD policy (8:1).

c. <u>Student Management</u>. This function could conceivably be lumped into the fourth function of Resource Management. While students are a training resource, the USAF has devoted so much special attention in the selection, flow, and tracking of students that the activity deserves individual treatment. The selection of students is fairly specific to each training element and is covered in detail in the training element descriptions. The flow and track of students is highly organized and structured for the Air Force at large via the Advanced Personnel Data System (APDS) and its interface with the Pipeline Management System (PMS). Between the two data systems, students are identified, their pertinent data flowed to and from the formal training activities, and status of the students tracked. More detail on PMS may be found in section IIC4.

d. <u>Resource Management</u>. This function refers to the personnel, equipment, materials, funds, and time needed to accomplish the training +activities. Much of this function is specific to the individual training elements, but a few aspects have a USAF wide perspective.

All USAF training is supported through the planning, programming, and budgeting system (PPBS). The strategic forces, general purpose forces, and airlift programs include the primary resources to support Military Airlift Command (MAC), Tactical Air Command (TAC), and Strategic Air Command (SAC) operational training. Since these commands have primarily operational missions as well as training, the USAF budget generally does not reflect specific funds allocated to MAJCOM training requirements. Within the USAF budget only the Program VIII contains elements devoted exclusively to training (55:22-2).

B. TRAINING ELEMENT DESCRIPTIONS

1. Officer Accession Training.

This subcategory (Fig. 7) of the training and education system refers to a planned curriculum of instruction intended to prepare a student for performance as an USAF officer (16:1). Air Staff oversight of the program rests with the Precommissioning Programs Branch (HQ USAF/DPPEF), Education and Training Programs Division, Directorate of Personnel Programs, Deputy Chief of Staff (DCS) for Personnel. Four field units conduct seven courses of instruction as follows:

United States Air Force Academy (AFA)

- Academy Cadet Training (ACT)

Air Training Command (ATC)

- Air Force Reserve Officer Training Corps (ROTC)

- Officer Training School (OTS)

- Military Indoctrination for Medical Services Officers (MIMSO)

Air University (AU)

- Air Force Officer Orientation Course (AFOOC)

- Health Profession Officer Indoctrination Course (HPOIC)

Air National Guard (ANG)

- Academy of Military Sciences (AMS)

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Figure 7.   Officer accession training.

　　　　a.　Requirement Management.　This management task involves determination of *the numbers of personnel* and the kinds of initial officer military training required (Fig. 8).　The individual field units forecast their requirements and forward them to Air Staff for screening and reconciliation against the budget.　Currently, the need outweighs the funding (e.g., 7000 vs. 5400).　Air Force DPPEF computes student loads and manually reenters the data into digital media for passing to other Air Staff and DOD agencies for subsequent screening and consolidation with other requirements into the DOD Military Manpower Training Report.
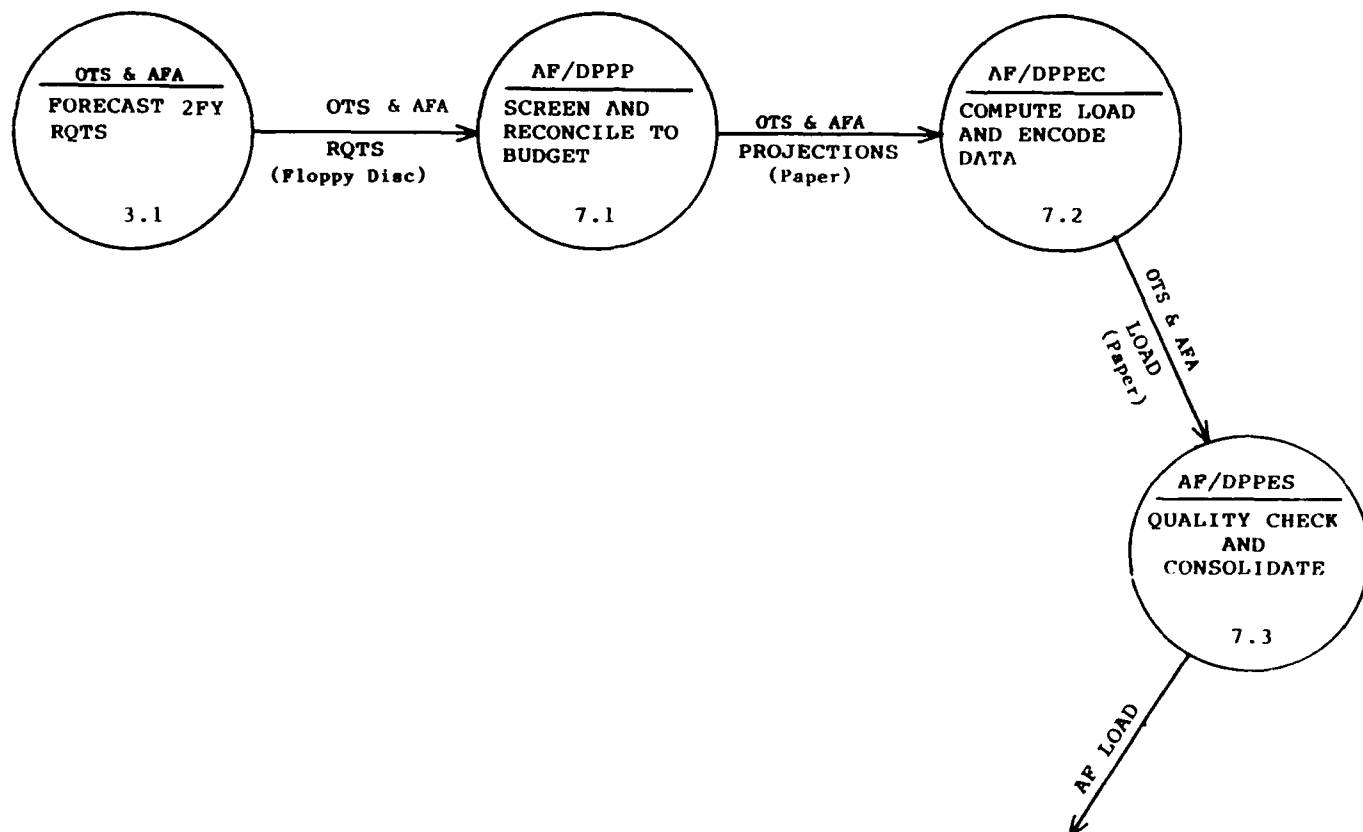
Figure 8. Officer accession requirement identification.

b. Curriculum Management. A major Air Staff management task involves coordinating the various initial military education activities so that there is standardization of the core curriculum. The vehicle for this coordination is the Commissioning/Education Memorandum of Understanding (CEMU). Through the CEMU, common subject areas and associated goals are identified. The commonality of the curriculum is at a somewhat global level. Specific implementation of the generalized core objectives varies widely across the schools. Time devoted, depth reached, and method of objective achievement is not standardized.

Every 2 years, representatives from the field units meet to confer on proposed changes. The Air Staff relays curriculum proposals as a result of MAJCOM inputs, and Headquarters Air Force, DOD, and congressional policy revisions (Fig. 9). An example of this proposal is the current year-long congressional review of officer military education programs which is pointing toward more attention for United States law courses and strategic studies (49:22). Representatives from the Officer PME community also attend to work program phasing and interfaces. There is no coordination with the Enlisted Military Education community.

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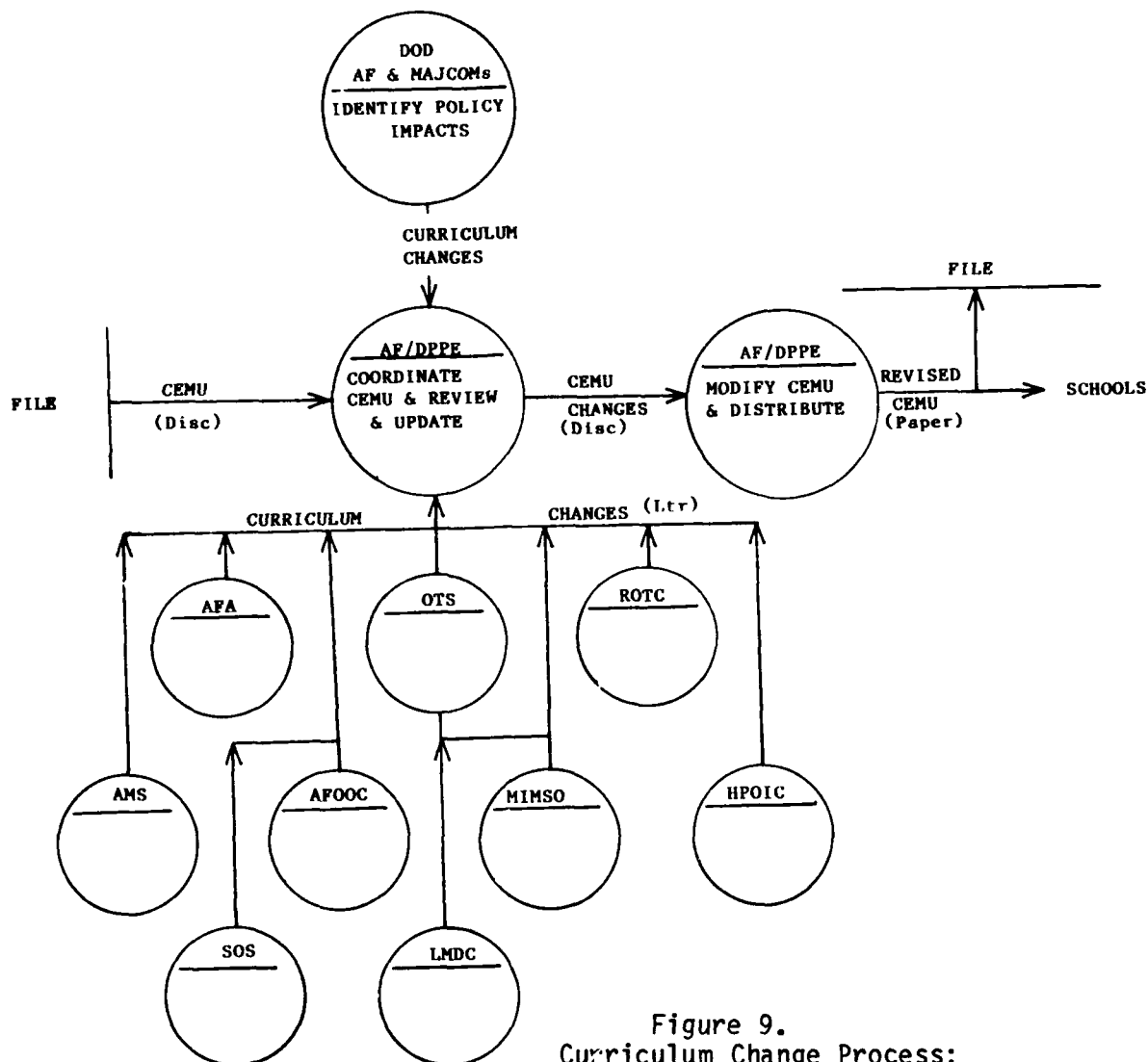
Figure 9.
Curriculum Change Process:
Officer Accession Training.

Besides overseeing existing courses, managers are sensitive to require-
ments for new instructional offerings. For example, there is an awareness
that an incongruence exists between the highly regimented training environment
and the more informal work setting. The impact of this nonreinforcing, OJT
environment is a concern. New lieutenants on-base may need some sort of a
follow-on refresher or support course. Additionally, lieutenants who exper-
ience a prolonged delayed entry to active duty may need a short, re-blueing
course of instruction.

       c.   Student Management. For ROTC and the Academy, management
of the student pipeline of Officer Initial Military Training is in tandem with
that of Officer Initial Skill Training. This function is also intimately
related to the awarding of Officer Initial Skill Training scholarships and,
therefore, the related student management is discussed in section IIF.

For OTS, AMS, AFOODC, MIMSO, and HPOIC, identification of candidates is
conducted by the Air Force Recruiting Service (ATC/RS). After applicants are
processed against initial screening criteria, their records go before a selec-
tion board.

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d. Resource Management. Responding to uncertain and varying funding is a major management activity at both the Air Staff and at the field units. With some programs involving 4-year scholarship contracts, there is limited flexibility in responding quickly to gyrating budgets. Managers want to be given a firm 2-year target to plan against to avoid the inefficiencies of reoccurring adjustment drills.

Managers also believe that across the board cuts have exceeded their utility in accession training. With less fat to begin with, they contend that USAF "fair share" reductions are creating a production shortfall in the long term.

The facility resources for accession training are extensive. Of course, the Academy campus in Colorado Springs is a complete university complex. Officer Training School has a smaller, but also self-sufficient facility. Additionally, there are some 150 AFROTC detachments located on college campuses throughout the United States, plus more than 300 junior AFROTC units at local high schools across the nation.

One management response to reduced funding is the lowering of facility investments. This move could match congressional cuts in officer-end strength (36:1,24). A closing of 25 to 35 ROTC detachments would reduce instructor and staff personnel by approximately 200, but still allow ample production capability at the remaining units. A constraint on this strategy is the congressional resistance to closing of military agencies (35:27).

Consolidation of organizations and activities is another option to precommissioning managers. Merger of various headquarters staff could reduce overhead. Use of the OTS facilities for ROTC summer encampments could centralize such training in a facility tailored to provide the appropriate instruction. Also, a synergy could be achieved with similar student tracking and control objectives and procedures. Existing hierarchies would probably resist such change.

Besides responding to ebbing funds, the precommissioning managers also look at shifting ROTC detachments for increased recruitment opportunities. For example, the depressed economic conditions in the Houston, Texas area restrict the placement of graduating engineers in the civilian sector. Shifting a detachment to an area university could increase recruiting potential for these coveted graduates.

2. Enlisted Recruit Training.

The purpose of Air Force BMT is to orient and familiarize new USAF enlistees with the USAF rules and procedures. This training is the first step in developing young people into productive enlisted members (Fig. 10).

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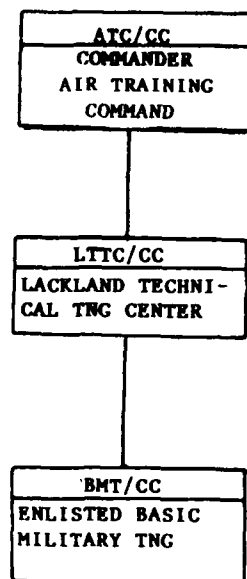
Figure 10.   Enlisted recruit training organization.

      a.   Requirement Management. Production for BMT determined by the manpower ceiling established by the Congress. Air Force DPP identifies the number of new recruits to be enlisted into the USAF. These quotas are sent to the Air Force Recruiting Service who determines the number of monthly quotas. The Air Force Recruiting Service then notifies the Commander of Air Force Basic Military Training of the estimated number of recruits.

      b.   Curriculum Management. The curriculum for BMT is control- led by the BMT commander. A biennial review is conducted to assess the curri- culum (42:31).   The review participants come from each major air command, separate operating agency, and direct reporting unit; and include selected functional managers from the Air Staff. The recommendations of this biannual review are sent to the commander of BMT for approval.

      c.   Student Management. When students arrive at Lackland Air Force Base, Texas, they are sent to the inprocessing center.   They are assigned to student squadrons and subsequently into flights. While recruits, they are under the direct control and supervision of Military Training Instructors (MTIs) until graduation. After recruits complete training, they proceed to their next assignment. Some students are sent directly to an oper- ational base and begin their OJT. Other students are sent to technical train- ing centers where they begin the first step in becoming skilled in a specific Air Force specialty. (See the Enlisted Technical Training description in section IIB5.) The student's records are sent to their next base using the PMS.

      d.   Resource Management. Resources for BMT are the responsi- bility of the BMT commander. The commander has a resource manager to manage and control the resources for BMT. This individual is responsible for budget allocations, purchasing, and ordering the necessary resources required to

support the BMT mission. The resource manager has representatives in each student squadron to assist in identification and control of resources in BMT. This job is an additional duty of a noncommissioned officer (NCO) in the student squadron.

(1) Squadron Commanders. Officers selected as squadron commanders of the student squadrons are normally volunteers. If an officer desires to be considered for this position, he or she sends a volunteer package to the Air Force MPC at Randolph AFB, Texas. The Military Personnel Center reviews the package for basic eligibility status outlined in AFR 36-1. Then the package is sent to ATC/DP for review and consideration. The Commander at BMT also reviews each volunteer package and makes recommendations to ATC/DP. Air Training Command DP then approves or disapproves the volunteer. Officers selected for squadron commander assignment at BMT are notified in writing and their assignment is then initiated through MPC.

(2) Military Training Instructors (MTI). Non-commissioned officers and airmen who desire to perform duties as an MTI are normally volunteers. If a noncommissioned officer or airman desires to be considered for this position, he or she sends a volunteer package to MPC at Randolph AFB, Texas. The Military Personnel Center reviews the package for basic eligibility status as outlined in AFR 39-1. Then the package is sent to ATC/DP for review and consideration. The Commander at BMT also reviews each volunteer package and makes recommendations to ATC/DP. Then, ATC/DP approves or disapproves the volunteer. Those NCOs selected for an assignment to BMT are notified in writing and their assignment is then initiated through MPC.

(3) Administration and Support Personnel. Other personnel assigned to BMT are selected under the normal Air Force assignment process at MPC. There are no special requirements for this category of people.

(4) Manpower Review. The Air Force Recruiting Service allocates the monthly student quota flow to BMT. This figure fluctuates monthly and many factors affect it. For example, cutbacks in personnel funding (37:1,12) or activation/deactivation of a weapon system effect the USAF manpower end-strength. Consequently, the number of recruits for a specific period is adjusted (42:4). Another example of adjustment results from variable recruiting markets during the year. Historically, the armed forces experience high enlistment rates after June graduations and after the December holidays (50:22).

This fluctuation in the student flow process impacts on the manpower requirements for MTIs. It is very difficult to project future requirements if there is a constant fluctuation in the number of recruits entering BMT each month (50:2-23). To compensate for the manpower levels, BMT conducts a semi-annual review of its MTI manpower requirements. The review is based on historial student flow trends and projected student flow estimates. Requests for increases in MTI strength is based on the estimated student flow, then processed to MPC through ATC/DP. The manpower review is critical when increases in student flow are realized. Another complicating factor is that required certification lead times affect MTI availability and certification. Once an MTI arrives at Lackland AFB, an estimated 6 months is required to qualify the person for duty.

3. <u>Officer Professional Military Education.</u>

This subcategory of the training and education system provides officers with leadership, management, and war fighting skills. This training is done through three progressive levels of schooling: (1) Squadron Officer School (SOS) for junior officers (first lieutenants and captains); (2) Air Command and Staff College (ACSC) for intermediate officers (majors); (3) Air War College (AWC) for senior officers (lieutenant colonels and colonels). All three schools are administered by the Air University (AU). Students could attend these schools either as a resident at AU or nonresident via correspondence (17:2).

a. <u>Requirement Management.</u> Officer PME program requirements are determined by the Air Staff. On an annual basis the Air Staff produces force strength requirements for all officer ranks, and apportions numbers to the MAJCOMs based on need. The Air Staff reconciles MAJCOM needs with budget limitations. When this reconciliation is done, the Air Staff forwards the final student quotas to AU. Ideally, all officers would attend PME schools in residence at the appropriate points in their career, but there are not enough education dollars in the budget to allow for this.

b. <u>Curriculum Management.</u> Course objectives for officer PME are determined by a program review board at AU. Curriculum content and quality is reviewed annually by Air Staff functional managers, who then provide their recommendations to the program review board. There is planned overlap among the three levels of officer PME so that each school's curriculum is reinforced and built upon by the next level of PME.

A survey is administered to all PME students after course completion to obtain feedback on curriculum. Follow-up surveys are sent to both students and their supervisors 6 months, 2 years, and later after graduation. In addition, the U.S. Air Force Occupational Measurement Center (OMC) periodically surveys all officer ranks for opinions concerning the usefulness of PME curriculum OJT. Results of a 1982 OMC survey indicated officers are generally pleased with PME curriculum.

Managers at AU perceive a need for refinement of intermediate officer PME (ACSC). Tradition drives the curriculum at all stages of officer PME. Management believe that a major change in program structure is necessary to force creativity and innovation in this area.

Professional Military Education curriculum is currently the subject of congressional inquiry. The House Armed Services Committee has convened a special panel that began a 1-year review of PME programs for all military officers. Panel members believe military officers need more courses in US law, particularly those laws that apply to the military. These members are also concerned with the teaching of military strategy, stressing the need for greater emphasis on conventional warfare and joint-service cooperation.

c. Student Management. The student flow (Fig.11) in officer PME differs somewhat between SOS and the higher level courses. For SOS, AU forwards student quotas to MPC. The quotas are allocated for equitable distribution and sent to the MAJCOMs. These commands then reallocate the quotas and send them to the individual units, who designate primary and alternate SOS candidates from their applicant pool. Each unit generates a list of names which is sent back to the MAJCOM for publication. These commands then send the list to Consolidated Base Personnel Offices (CBPOs) which notify designees and enter an assignment control code in the APDS to prevent reassignment prior to school attendance. Students are sent on temporary duty (TDY) to SOS. Upon course completion, the Extension Course Institute (ECI) updates the officer PME data on MPC's Master Personnel File (MPF).
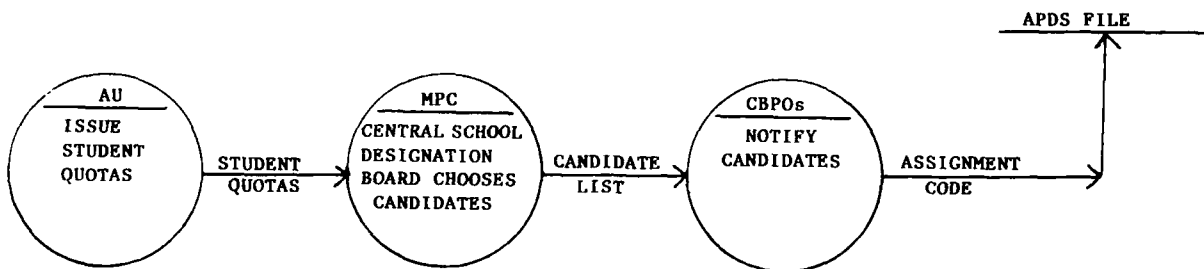
Figure 11.   ACSC and AWC Student Management.

The process is less complex for ACSC and AWC students.   Air University generates quotas which are sent to MPC (Fig. 12).   The Central School Designation Board at MPC selects primary and alternate candidates and publishes a list of these names.   This list is sent to base CBPOs which notify designees and enter an assignment control code in the APDS.   Students are sent on a permanent change of station (PCS) to ACSC and AWC.   Same as with SOS, ECI updates officer PME data on the MPF after course completion.

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   AU                    MPC                   MAJCOMs               UNITS
ISSUE              ALLOCATE              REALLOCATE            DESIGNATE
STUDENT    STUDENT  QUOTAS     STUDENT   QUOTAS     STUDENT   CANDIDATES
QUOTAS     QUOTAS            QUOTAS              QUOTAS
```

CANDIDATE
NAMES

APDS FILE

```
                         CBPOs                          MAJCOMs
                       NOTIFY                          PRODUCE
          ASSIGNMENT   CANDIDATES   CANDIDATE          MASTER LIST
            CODE                     LIST              OF
                                                       CANDIDATES
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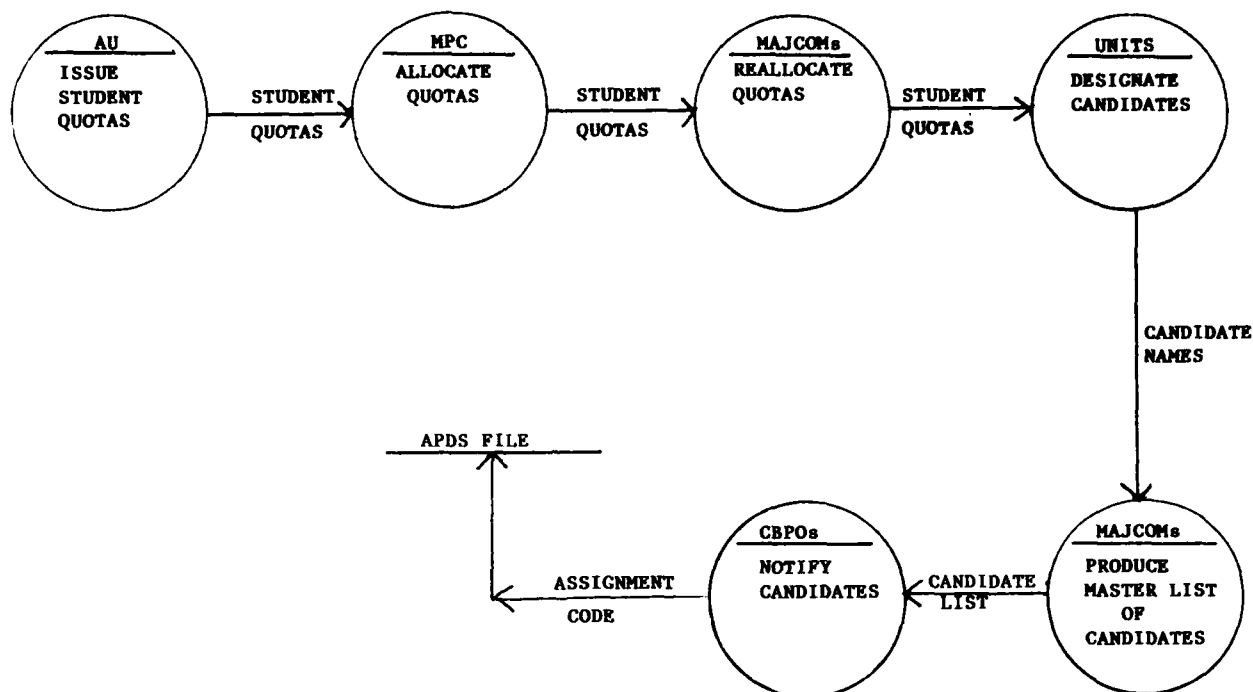
Figure 12. SOS student management.

d. Resources Management. Faculty at officer PME schools are selected by MAJCOM functional managers, who submit their recommendation to the school commandant for final approval. The faculty consists primarily of active duty USAF officers, causing a high turnover rate. Managers state that faculty members and managers barely have time to learn their jobs before they leave AU, allowing no time to develop expertise. When there is an opportunity to initiate program revisions, the responsible staff members leave AU before results are visible so that there is no sense of accountability.

The budget has not grown since the passage of the Gramm-Rudman Act. Management predicts future budget constraints would lead to a greater number of nonresident courses. Extension Course Institute handles all aspects of nonresident PME. The institute's workload would undoubtedly increase as the resident schools' attendance is cut back.

Managers are concerned that some courses will not easily adapt to a correspondence mode of instruction. Some options considered to deal with this problem are:

(1) Instructors could be sent to a central point and students in that region could be gathered for a course.

(2) One instructor could be linked with students at bases around the world via satellite communications.

Managers need to identify courses that would best lend themselves to these methods of instruction. Once identified, these courses could be supplemented by correspondence courses to fulfill school requirements.

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4.   Enlisted Professional Military Education.

US Air Force Noncommissioned Officer Professional Military education (Fig.13)is a 4-level program that prepares USAF NCOs for positions of responsibility by broadening their leadership and management skills and expanding their perspective of the military profession. This program meets a vital Air Force requirement and is designed to meet individual NCO needs at particular times in their career.
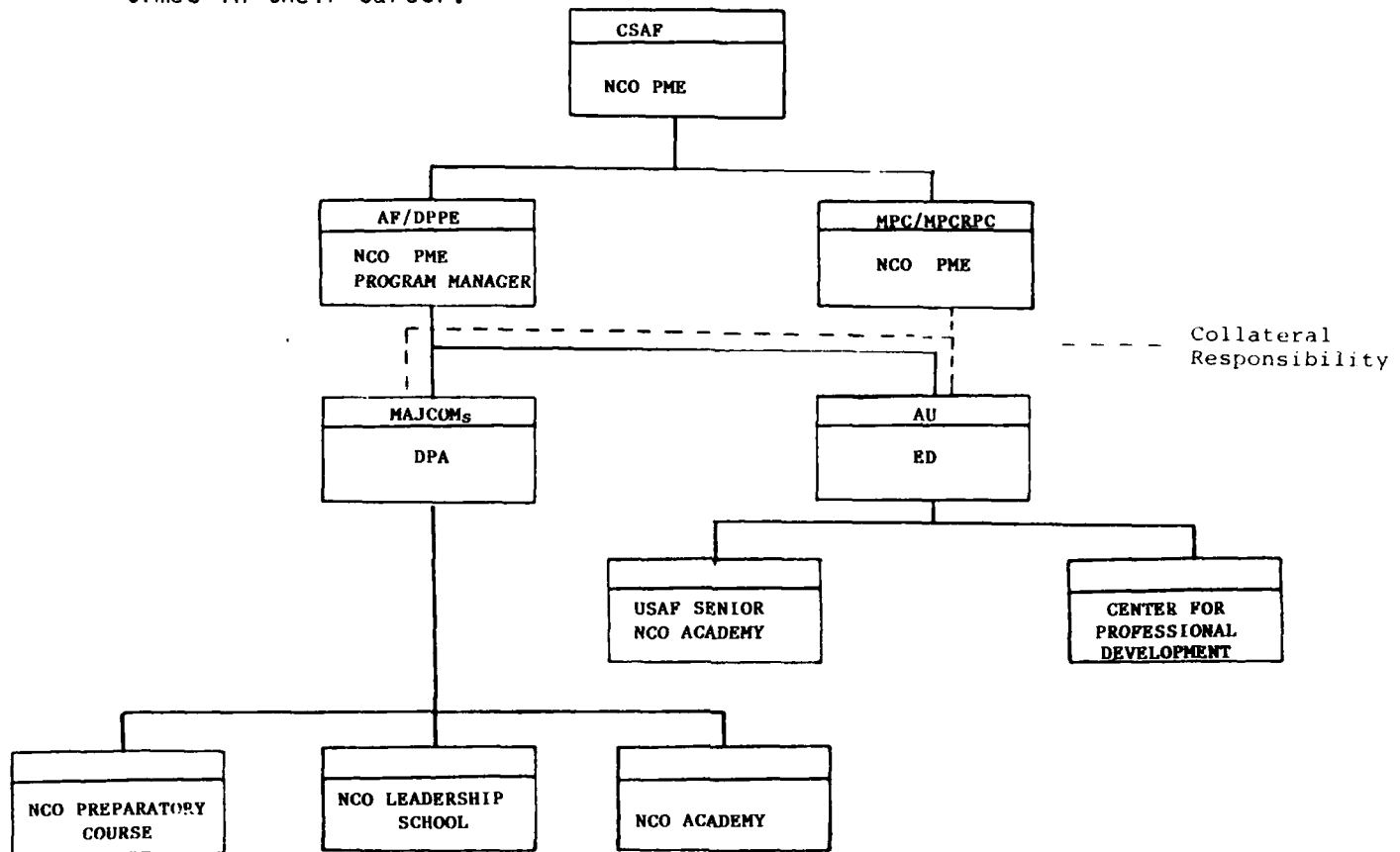
Figure 13. Enlisted PME organization

a.   Requirement Management. The student flow into NCO PME courses differs with each course. The common management control for the NCO PME is the Consolidated Base Personnel Office.

(1)   NCO Preparatory Course. Since this training is a mandatory course for award of NCO status, each senior airman must complete this course. The CBPO prepares and sends lists identifying the eligible airmen to each squadron commander. The base NCO Preparatory Course Commandant also sends a monthly quota allocation to the squadron commanders. The commanders are responsible for ensuring each eligible airman is given the opportunity to attend.

(2)   NCO Leadership School and NCO Academy. The CBPO receives quota allocations from the PME Center. Then each base establishes a

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system for selecting eligible and deserving NCOs for attendance. Each NCO has to fulfill eligibility criteria outlined in AFR 50-39 (14:--). NCOs chosen to attend the NCO Leadership School (NCOLS) and NCO Academy (NCOA) are selected by their respective base commander.

(3) Senior NCO Academy. The selection of eligible senior master sergeants and chief master sergeants to attend the Senior NCO Academy is made by the Air Force MPC at Randolph AFB, Texas. Approximately 10% of the NCOs selected are early career promotees. The remaining NCOs are selected in each USAF Specialty by promotion order of merit.

b. Curriculum Management.

(1) The NCO PME course developers use the concepts of the Air Force ISD. The NCO PME curriculum is developed using AFR 39-6, outlining general and specific NCO responsibilities. Another document used to develop curriculum is the Occupational Survey entitled: "Enlisted Professional Military Education." This survey assesses the leadership, management, and communications related tasks performed by enlisted personnel. Other sources of information used to develop curriculum include recommendations from curriculum workshops, summaries of findings by the Leadership Management and Development Center consultant teams and survey results from supervisors and commanders in the field.

(2) Each year MPC/PMCRPC conducts an annual NCO PME conference. One function at this conference is to develop NCO PME instructional goals. These goals are developed into instructional objectives at periodic curriculum review workshops. The instructional objectives, tests, and evaluation instruments are established by the schools for NCO Leadership Schools, NCO Academies, and the Senior NCO Academy. The Air University Center for Professional Development develops the instructional objectives, tests and evaluation instruments for the NCO Preparatory course.

(3) NCO Professional Schools.

(a) NCO Preparatory Course (NCOPC). This 60-hour course focuses on leadership-followership and familiarizes airmen first class and senior airmen with NCO duties and responsibilities. The course also begins preparing eligible airmen for their first supervisory position. This course is a mandatory prerequisite for airmen to satisfactorily complete for NCO status. Students have to achieve a 70 % on written examinations and pass all subjective and performance evaluations to graduate. The Air University Center for Professional Development (AUCPD) is responsible for developing course curriculum and other related course materials. These instructional documents are approved by AF/DPPE and then sent to each base for implementation. The course is then monitored by MAJCOMS and AUCPD through the use of student critique forms, surveys, and AUCPD field evaluations.

(b) NCO Leadership School. This 143-hour course broadens the leadership and management skills of selected sergeants and staff sergeants. Annual US Air Force production provides the opportunity for 95%

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of staff sergeants to attend an NCO Leadership School by their 9th year of service. Major commands are responsible for establishing and maintaining USAF NCO leadership schools. Unit commanders are responsible for the selection of qualified NCOs for attendance at the NCO leadership schools.

(c) NCO Academy. This 216-hour course prepares selected technical sergeants and master sergeants to perform mid-level supervisory and management responsibilities. Annual US Air Force production provides the opportunity for 89 % of staff sergeants to attend an NCO Academy by their 15th year of service. Major commands are also responsible for the development of the NCO Academy curriculum and support materials. Each NCO Academy must develop their course using the instructional objectives and follow the course outline identified in AFR 50-39.

(d) The USAF Senior NCO Academy. This 320-hour course provides NCOs with the education necessary for senior master sergeants and chief master sergeants to become more effective and efficient leaders and managers. The graduates of this course subsequently approach their assignments with an expanded perspective of the military profession and broadened leadership and management capabilities. Annual US Air Force production provides the opportunity for 65% of senior master sergeants to attend the USAF Senior NCO Academy. The operation of the USAF Senior NCO Academy is the responsibility of the Air University. The design of the curriculum and other related student materials is developed by the USAF Senior NCO Academy and approved by MPC.

c.   Student Management.

(1) NCO Preparatory Course. Students eligible to attend this course are identified by the base CBPO to each organization on base. In turn, the unit commander is responsible for ensuring that each airman first class and senior airmen are given the opportunity for attendance.

(2) NCO Leadership School and NCO Academy. Selection is on a best qualified basis and consideration is given to growth potential of the candidate. Major commands are also responsible for the development of the NCO Leadership School and NCO Academy curriculum and support materials. Each NCO school develops their course using the instructional objectives and follows the course outline identified in AFR 50-39.

(3) USAF Senior NCO Academy: Selection of NCOs for attendance to this course is made by MPC. The selections are drawn from the senior master sergeant promotion roster with each Air Force Specialty receiving an equitable prorated share of the total selections.

d.   Resource Management.

(1) Air Force DPP is responsible for the NCO PME program. As the office of primary responsibility, their major responsibilities include making policy on all aspects of the NCO PME program, coordinating on MAJCOM plans pertaining to the NCO PME centers, selecting personnel to attend the Senior NCO Academy, and conducting annual conferences pertaining to NCO PME.

(2) Military Personnel Center DPCRPR is also responsible for developing policies and procedures governing the NCO PME. Although this office does not possess operational control over the NCO PME programs, it provides the specific prerequisites for attendance and controls the course curriculum for each NCO PME course.

(3) Major commands are primarily responsible for conducting NCO PME programs under the guidance of MPC. They also provide NCO PME resources, as well as allocate quotas to bases within their command. Since MAJCOMS are responsible for conducting the NCO PME program, they ensure the educational objectives are achieved as direct by AFR 50-39. Major commands also conduct periodic workshops and make recommendations affecting NCO PME to MPC/DPCRPC.

(4) Air University (AU) is responsible for maintaining and operating the Air Force Senior NCO Academy located at Gunter Air Force Station (AFS), Alabama. They also allocate quotas to MAJCOMS for the Academic Instructor Course. Attendance and successful completion of this course is a mandatory prerequisite for all NCO PME instructors. When requested, the staff of Air University also provides guidance and assistance to NCO PME centers.

(5) The Air University Center for Professional Development conducts the NCO Preparatory Instructor Course. This course is mandatory for instructors teaching the NCO Preparatory Instructor Course. The Leadership and Management Development Center prepares NCO PME bibliographies and provides assistance to NCO PME centers to improve the quality of instruction of the NCO Preparatory Course.

5. Enlisted Technical Training.

Technical training is a planned program of instruction designed to equip a student with the knowledge and skills required to perform satisfactorily in an occupational specialty. US Air Force enlisted personnel acquire and enhance occupational knowledge and skill through participation in resident training and OJT. Resident training generally refers to formal courses of instruction conducted by a training agency such as ATC. The resources for this type of training are normally provided by the training agency and, while in training, the students are administratively assigned to the agency either in an accession pipeline or TDY status. On-the-Job Training is duty-related training an individual receives while performing duty in a specialty. US Air Force OJT is a dual channel program consisting of both knowledge training and hands-on position qualification training (2:10-3). On-the-Job training resources are normally supplied by the unit and the student remains assigned to the unit.

Skill level upgrade training (Fig. 14) is phased through an initial skill acquisition phase (3 level) to two follow-on skill development phases (5 and 7 levels). A fourth skill level, the 9 level, is acquired through development of supervisory and management skills. No additional technical training is required for attainment of the 9 level. Most enlisted personnel acquire initial skills by attending an ATC formal course of instruction prior to reporting to their first permanent duty assignment.
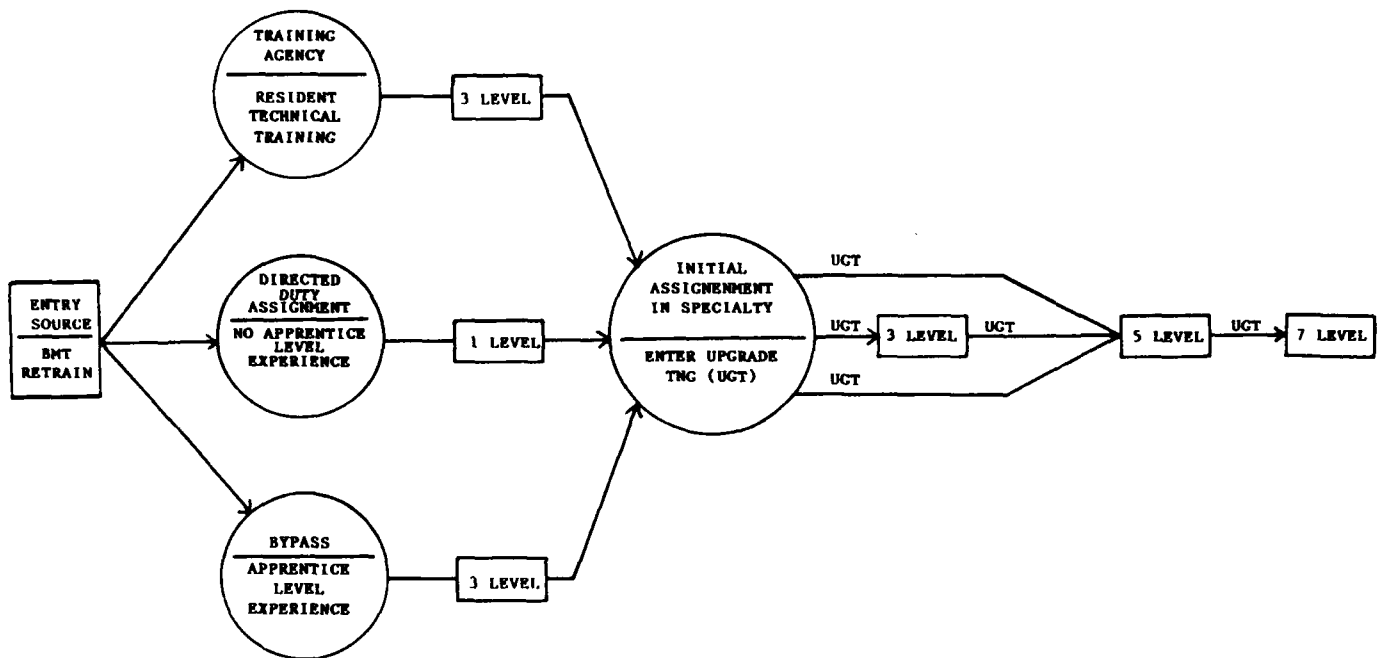
Figure 14. Enlisted skill upgrade training.

Field Training Detachment (FTD) training is used to supplement OJT, primarily in weapon system maintenance specialties. The FTD system is managed by the 3785th Field Training Wing, Sheppard AFB, Texas and is comprised of 77 detachments worldwide. These detachments are customer oriented and provide three types of support to the user. Their primary function is to provide weapon system specific specialized training. The second type of support FTDs provide is assistance and guidance to units in planning, establishing, conducting, managing, and evaluating OJT programs in any specialty. The FTDs also conduct training in specific skills associated with a variety of specialties. These associate courses are designed to enhance job proficiency.

      a. Requirement Management. This management task focuses on determination of the numbers of personnel and kinds of training required for mission accomplishment. Identification of initial technical skills (3 level) training requirements is intimately related to enlisted accessions which is globally managed at the Air Staff and is addressed in Section IIA2a of this study. The type of initial skill training an individual recruit receives depends on the specialty, availability of training resources, and the amount of preservice training or experience in the specialty. Resident initial training is mandatory for some specialties, therefore, selection and classification actions predispose training requirement decisions in those AFSCs. Other specialties where resident initial training is not so critical may permit bypass of resident training in those AFSCs, preservice training or experience might qualify the recruit for a skill level 3, or initial skills can be acquired through OJT when resident training is not available.

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Training requirements management, beyond initial skills training, involves training managers down to the unit level. Air Training Command issues an annual screening call for identification of training requirements which cannot be satisfied through MAJCOM resources. Field units project their training requirements for the following two fiscal years (FY) and forward these requirements to the MAJCOM for consolidation, validation, and reconciliation against the budget. Air Training Command also allocates funded formal school quotas to the MAJCOMs. Validated training requirements are prioritized and matched against funded quotas and are suballocated by the MAJCOM to the field units (Fig.5).

The Pipeline Management System (PMS), managed by HQ MPC, is the computer support system used for planning, controlling and allocating training throughout the USAF. Training managers at all levels with access to PMS terminals use PMS to manage the training requirements process. Those without access to PMS have to use AF Form 403, Request for Special Technical Training, to program their requirement (9:10). With few exceptions, the training requirements process is standard across all commands.

b. Curriculum Management. Course curricula are developed through application of the ISD model described in Section IIA2b. A US Air Force special publications, called a Specialty Training Standard (STS), prescribes the general course content and standards to which students are to be trained. The STSs are published for each Air Force Specialty (AFS); and they also identify training requirements for the 3-, 5-, and 7-skill levels. An STS describes a specialty in terms of the tasks and knowledges required to perform successfully in an AFSC, and it reflects the mandatory qualifications for the AFSC established by AFR 39-1. The STS identifies tasks common to the specialty and serves to standardize both resident and on-the-job training. It specifies the level of training given in AFSC awarding courses. In addition to standardizing training, STSs serve to: (1) guide preparation of Career Development Courses (CDC); (2) form a starting point for development of Job Qualification Standards (JQS) for OJT programs; and (3) provide a standard for evaluation of training program graduates. Air Force DPPTS provides Air Staff oversight of STSs by prescribing policy for their development, format, use, and publication. Air Training Command is responsible for conducting a periodic review of each STS.

The ATC/TTO schedules periodic Utilization and Training (U&T) workshops to review the interface between job requirements and training (Fig. 15). Key players in this review, in addition to ATC/TTO, are the MAJCOM functional managers and the school training managers. During the U&T Workshop several sources of information are reviewed and analyzed to determine if STS changes are required. The primary sources are: Occupational Survey Reports (OSRs), Training Quality Reports (TQRs), AFR 39-1, Field Evaluation Reports, and general recommendations from the field. Workshop schedules and results of STS reviews are published by ATC/TTO in the USAF Program Technical Training, Volume Two, which is issued to training managers each February, June and October (24:1-24).

In conjunction with the U&T Workshop, ATC/TTO coordinates tentative STS additions, deletions, and changes with the field and provides rationale for each task. At the completion of the review process, ATC reviews and analyzes the results and prepares the final STS for publication. Resulting STS changes are reviewed to determine potential impact on course curriculums, CDCs, and field training programs.
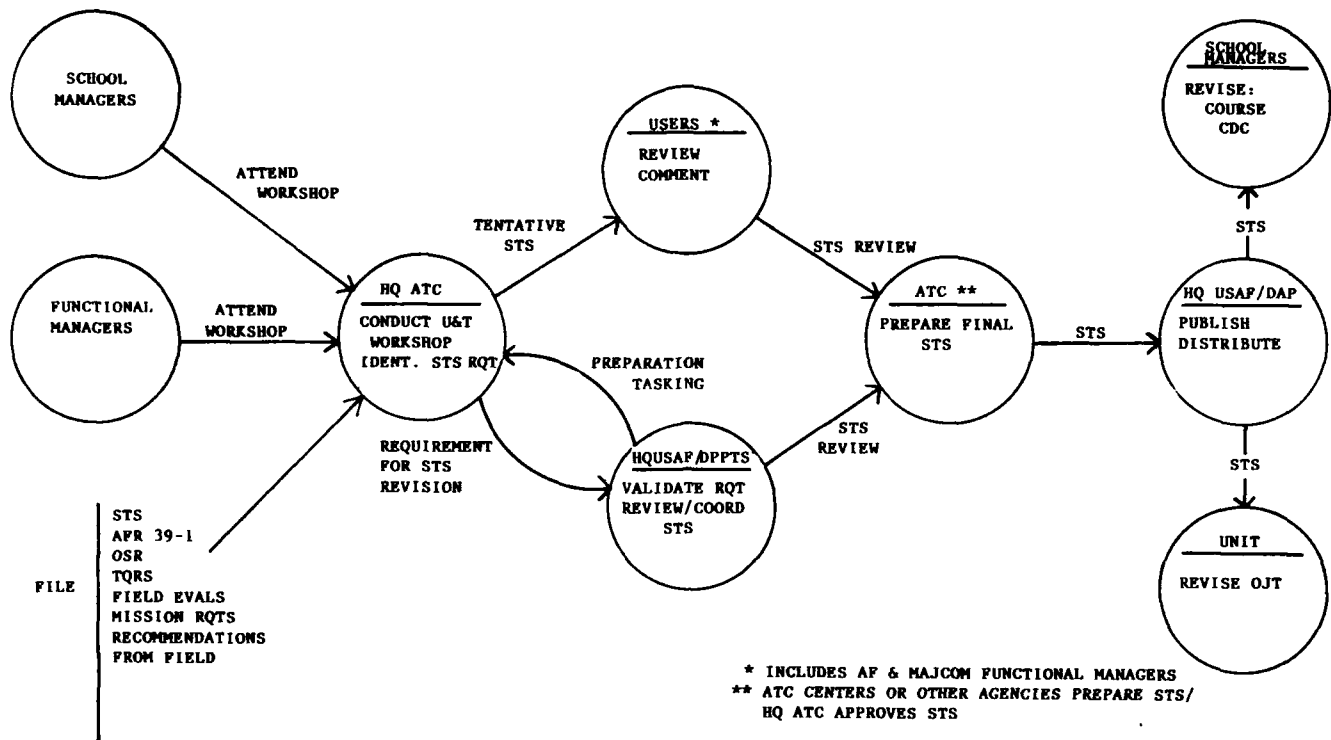
Figure 15. Utilization and training workshop/STS review.

In addition to curriculum changes precipitated through STS changes, training managers and supervisors may directly impact course curriculum by submitting AF Form 1284, TQR. These TQRs document the quality of training received by personnel recently graduated from a formal course of instruction. Supervisors complete TQRs on recent graduates and forward the form through the unit training manager to the MAJCOM/DPAT. Functional managers review the reports and return them to DPAT with comments (Fig. 16). Then DPAT forwards the reports and comments to the ATC unit that conducts or monitors the training (13:7-19).
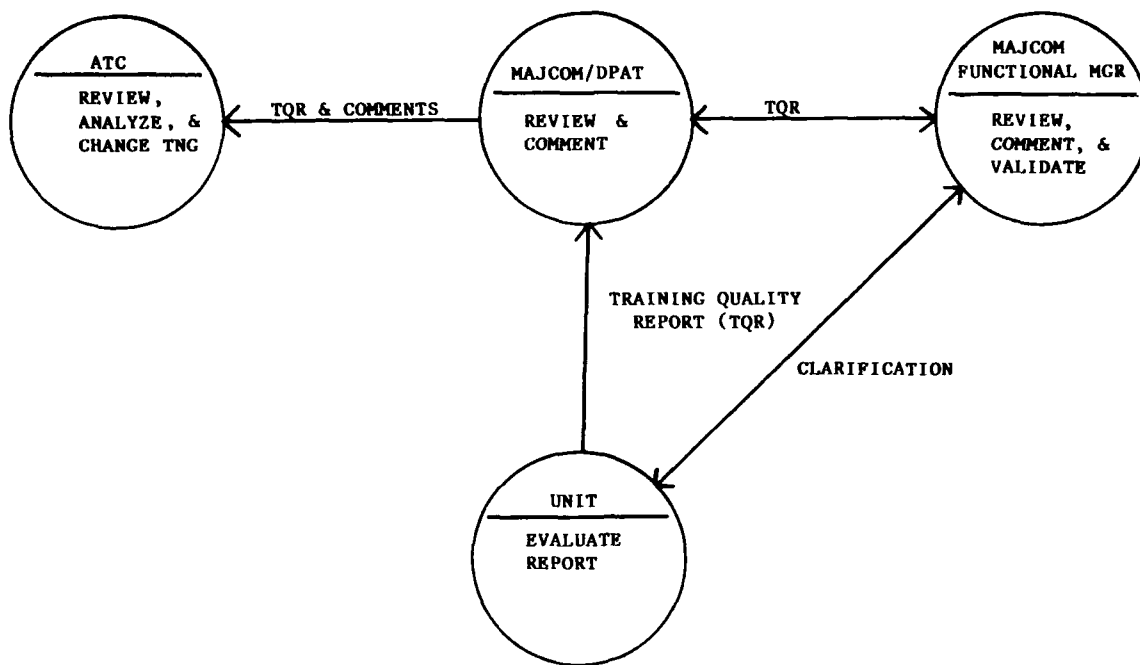
Figure 16. Training quality reporting.

      c. **Student Management.** This activity refers to management of the student resource from the time of selection for training to completion of training and return to full duty. It includes functions such as student assignments, documentation of student progress, scheduling, and monitoring student status. Responsibility for these functions varies depending on the type of training.

          (1) **On-The-Job Training.** Most of the management responsibilities for students engaged in OJT rests with the student's supervisor. In addition to supervising a subordinate's duty performance, the supervisor is the key element in planning, conducting, and evaluating each subordinate's OJT program. A major portion of an individual's OJT is skill level upgrade training (UGT).

R U L E	A	B	C	D
				and is assigned to a unit manpower document (UMD) position in the ladder of his or her control AFS, then enter in UGT for award of AFS at the (see notes 1 2).
	If an airman is capable of UGT and possesses a control AFSC at the	and possesses an awarded and control AFS in the same career ladder at the same level	and the career field ladder of the control AFS	
1	1 level	yes		3 level (see note 3).
2	3 level		has a 5 level	5 level (see notes 3 and 4).
3			does not have a 5 level and is a SSgt (or SSgt selectee)	7 level (see notes 4, 5, and 6).
4	5 level		has a 5 level and is a SSgt, SSgt selectee, or above	.

Figure 17. Upgrade decision structure.

Determination of when and at what level an airman enters into a formal UGT program follows a structured decision process as depicted in Figure 17. The supervisor assesses the airman's status with respect to previous training, skill level, and current grade, and enters the airman into training for the next higher skill level above that awarded until the highest skill level authorized for the airman's grade is achieved.

Records required to document the training program and to record student progress are generated. The OJT records are required for all enlisted personnel through the grade of E-6 with only minor exceptions. Since most UGT programs are of relatively long duration (e.g., up to 24 months upgrade time to 7 level), the records are a vital management tool to assure program effectiveness. The documentation is important to commanders, managers, supervisors, and trainees because it reflects the actual status of the training program and helps management assess mission capability and readiness by indicating the number of qualified personnel available to accomplish the work. This documentation also identifies those needing training. Since airmen in OJT programs must also perform normal duties in their specialty, it is extremely important that the supervisor develop a training schedule so duty and training do not conflict. The documentation provides a framework for scheduling.

Various reports are generated on a recurring basis and forwarded through the unit training manager to the base training manager and to MAJCOM/DPAT. Each level uses the data to monitor status of individuals on OJT as well as the relative effectiveness of OJT programs.

(2) _Resident Skill Development Training._ Some specialized skill training subsequent to initial pipeline training requires individuals to attend formal courses of instruction in residence at an ATC Technical Training Center or other training agency location (12:--). Units request this training only when structured training is essential for satisfactory job performance and MAJCOM resources cannot provide the training. This training is referred to as TDY-to-School Skill Training or Special Training. Air Force DPPT provides Air Staff oversight for this ATC/TTP managed program.

Units select individuals to fill allocated (funded) training quotas. Air Force Regulation (AFR) 50-5 establishes prerequisites for all formal resident training normally attended by USAF personnel and serves as a guide in the selection process (7:--). Unit commanders are responsible for ensuring that selected individuals are eligible and available to attend training.

The unit's CBPO verifies eligibility and enters "by name" confirmations into PMS. At this point, the PMS record includes the funded quota, course number and schedule, and personal data on the individual selected to fill the quota. The CBPO prepares movement orders following reporting instructions issued by ATC and any special instructions specified by the training agency in AFR 50-5. This office also arranges transportation and advance travel allowances when requested.

During training the host unit provides student support functions (i.e., billeting, messing, etc.). If the host unit is not an ATC unit, ATC originates an agreement with the host to provide the required student support. The training agency (normally ATC) documents student progress toward accomplishment of course objectives. At the completion of training the individual returns to his/her unit and the training agency forwards course completion information to the individual's CBPO for inclusion in the trainee's personnel records. Completion of resident training obligates the individual to an increased service commitment.

d. _Resource Management._ The process of planning and programming resources to support resident skill development training is severely budget constrained. The stated annual MAJCOM training requirements far exceed the funds allocated for training. Training managers at the MAJCOM level are forced to prioritize the validated MAJCOM training requirements to fill the funded quotas.

Potentially, FTDs can play a greater role in specialized skill training during periods of constrained resources, particularly in initial skill training. The Initial Skill AFSC Multiphased Training Program for aircraft and integrated avionic systems maintenance personnel was developed as an alternative approach to training (11:1). This two-phase program is designed to shift part of initial training to FTDs when resources are constrained at the training centers. Award of the 3 level is contingent upon completion of the FTD phase.

Some managers foresee advanced OJT programs which employ computer-based training and interactive video as a potential solution to training budget constraints. Air Force DPPE has initiated a zero-base review of OJT and training managers view this initiative as an opportunity to enhance the USAF OJT program to more efficiently meet training needs (44:1).

6. Officer Technical Training.

This subcategory refers to the specialized skill training and education that prepares, maintains, and enhances an officer for his/her USAF occupation or job (Fig. 18). As noted, in Section IIA1, job training that relates to flying is discussed separately. Technical training is phased through initial skill acquisition to follow-on skill development as an individual pursues one's career. Air Staff monitorship is most visible in the initial skill acquisition phase. The follow-on skill development is not as tightly structured as it is for the enlisted segment of the force.

a. Officer Initial Skill. Some officers acquire their initial technical background prior to association with the service and no management is involved. These officers go directly to Officer Accession Training. Most officers, however, are recruited and selected based on the technical discipline they pursue in college and the needs of the USAF. Coordinating the matching of need is an important management activity. Air Force DPPE provides Air Staff oversight for this training subcategory with three field units directly managing four programs as follows:

Air Force Academy (AFA)

- Cadet Initial Skill

Air University (AU)

- Airman Education and Commissioning Program (AECP)
  Initial Skill

Air Training Command (ATC)

- Reserve Officers' Training Corps (ROTC) Initial Skill

- Initial Technical Training

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                          ┌─────────────────┐
                          │ AF/DPPE         │
                          │ OFFICER         │
                          │ TECHNICAL TNG   │
                          │          2.1.2  │
                          └─────────────────┘
              ┌───────────────────┴───────────────────┐
   ┌──────────────────┐                    ┌──────────────────┐
   │ OFFICER INITIAL  │                    │ OFFICER SKILL    │
   │ SKILL TRAINING   │                    │ DEVELOPMENT      │
   │         2.1.2.1  │                    │         2.1.2.2  │
   └──────────────────┘                    └──────────────────┘
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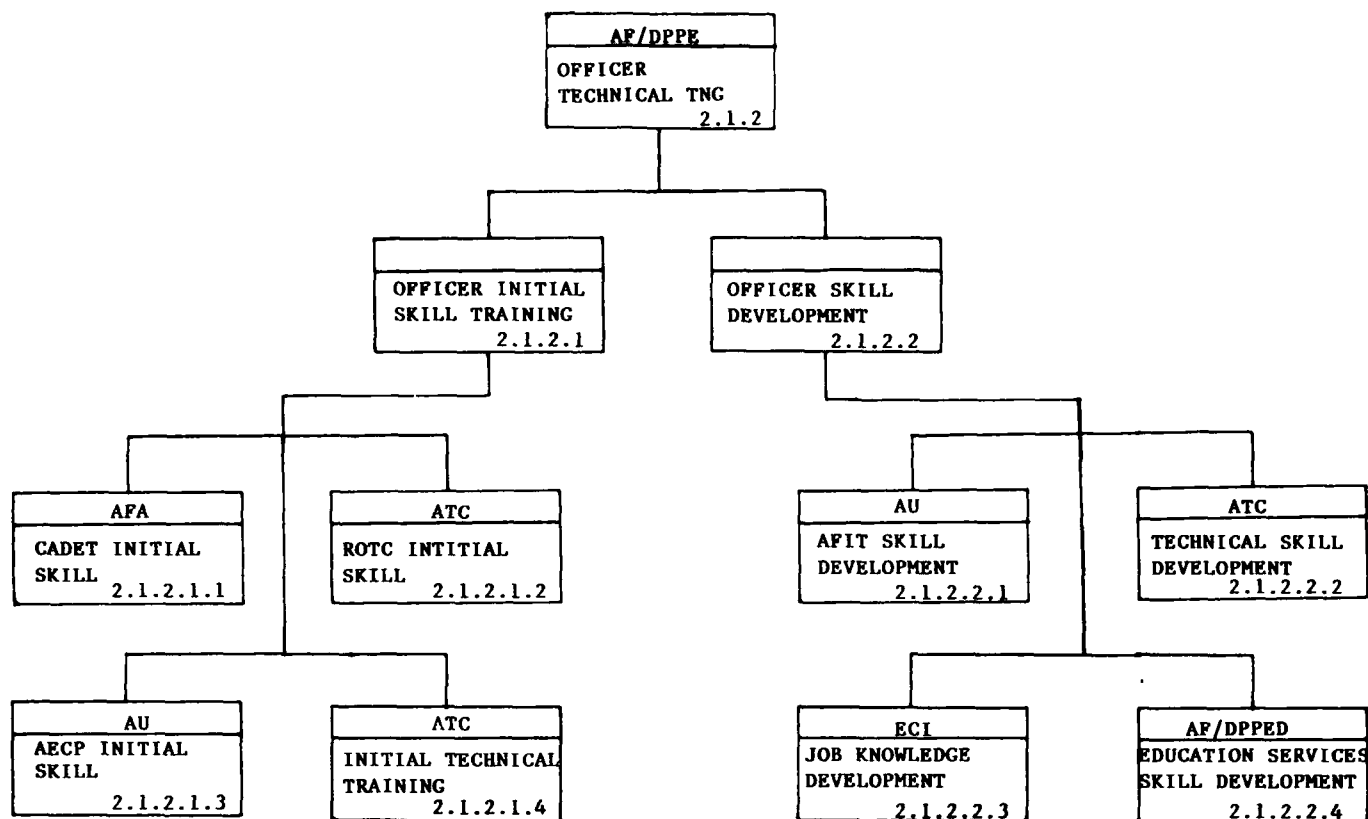
Figure 18.   Officer technical training.

AF/DPPE — OFFICER TECHNICAL TNG 2.1.2

OFFICER INITIAL SKILL TRAINING 2.1.2.1

OFFICER SKILL DEVELOPMENT 2.1.2.2

AFA — CADET INITIAL SKILL 2.1.2.1.1

ATC — ROTC INTITIAL SKILL 2.1.2.1.2

AU — AFIT SKILL DEVELOPMENT 2.1.2.2.1

ATC — TECHNICAL SKILL DEVELOPMENT 2.1.2.2.2

AU — AECP INITIAL SKILL 2.1.2.1.3

ATC — INITIAL TECHNICAL TRAINING 2.1.2.1.4

ECI — JOB KNOWLEDGE DEVELOPMENT 2.1.2.2.3

AF/DPPED — EDUCATION SERVICES SKILL DEVELOPMENT 2.1.2.2.4

Two of the four officer initial skill programs are closely aligned with Officer Accession Training programs. The ROTC and the AFA monitor or provide both categories of training. The AECP sponsors degree pursuits of enlisted personnel who have completed certain academic prerequisites (21:3-8).   Additionally, ATC provides initial skill training at its resident courses for officers already commissioned into the service and having completed Officer Accession Training.

       (1) Requirement Management. Requirements for this training element are driven by the Air Staff process described in paragraph IIA2a. The officer initial skill training communities receive a student production requirement based on the requirement for new trained personnel (Fig. 19). The communities add the student attrition rates to this requirement to get a gross student input number for each course.

```
   AF/DPPP                      ATC                      RS & ROTC
   COMPUTE         TPR        COMPUTE     STU - RQTS      RECRUIT
    TPR         ───────▶      STUDENT     ──────────▶    PERSONNEL
                              INPUT

    2.0                        3.0                         9.0
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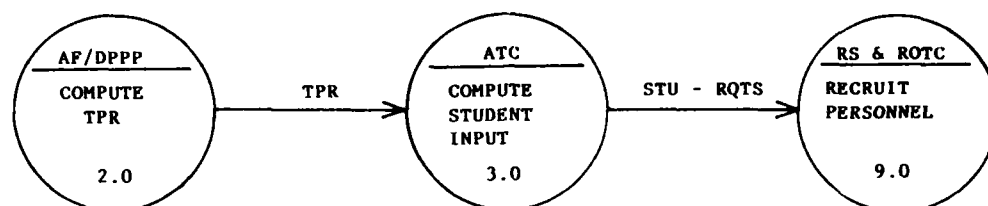
Figure 19. Requirements process: Officer initial skill training

The Air Training Command convenes a line officer production conference to determine types (pilot, navigator, AECP, other) and numbers of personnel to be recruited for the officer personnel pipeline. Those targets are then given to the Recruiting Service and ROTC for recruitment to ROTC and OTS. The AFA quotas are fixed by law.

(2) Curriculum Management. For ROTC, this management actively involves simply ascertaining that the educational institutions offer accredited degree programs in the technical areas of USAF need.

(3) Student Management.

(a) ROTC. The major management activity here is the selection of college students for ROTC scholarships (Fig. 20). The Recruiting Service and the ROTC campus staff identify candidates for sponsorship based on USAF technical need and students' Scholastic Aptitude Test (SAT) scores, grade point averages (GPA), and positions in high school graduating classes. Candidates range from high school juniors to college juniors.

Candidate records are automatedly screened for minimum threshold values of 1000 SAT, 2.5 GPA, and top 25% class rank. The records are then forwarded to the annual ROTC Selection Board which chooses the top 2,000-2,400 for scholarship offers varying from 2 to 4 years. Characteristics of recent selectees exceed 1,250 SAT, 3.6 GPA and top 6% class standing.

The scholarship offers are then submitted to the candidates for acceptance. Since the US Air Force is competing for an elite population with other scholarship programs, only about 50% of the candidates historically accept the offers. Even then, the characteristics of the accept group are well above threshold, exceeding 1,190 SAT, 3.3 GPA, and top 15% class rank.

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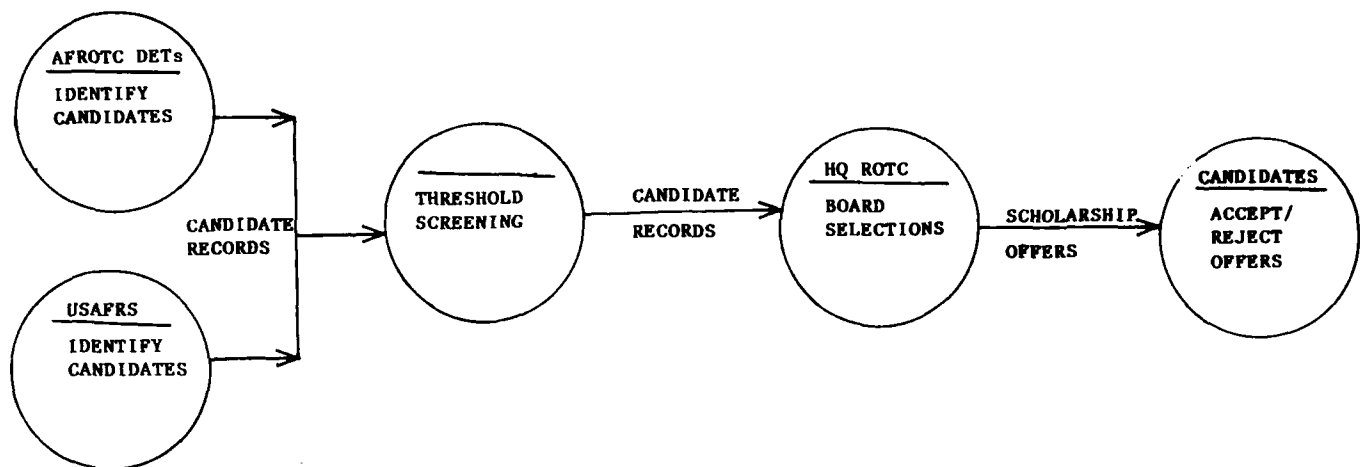
Figure 20. Selection of ROTC scholoarship recipients.

There are a small number of scholarships offered to minority candidates who might not have as high of selection characteristics. These allocations are in support of national social policy.

Another major management issue in the ROTC program involves the disposition of students after graduation and commissioning (Fig.21). The bulk of students graduate in the narrow time window of May to June. The ROTC graduates wait from one month to one year before being assimilated into USAF (average 5 months for navigators, 8 months for pilots, and 8 months for nonflying personnel).

Several constraints affect ROTC graduate management. These graduates have to be allocated to a limited number of Air Force follow-on initial skill school seats that became available through the following year. Entry priority of ROTC graduates is also after the absorption of AFA and OTS graduates. Air Staff legal opinion holds that graduates delayed beyond 1 year are probably no longer obligated to enter the service, setting a longevity ceiling for managers. Finally, the Air Staff decision, to take unprogrammed cuts in officer strength by reducing accessions, lowers the production requirement after the fact for ROTC managers (42:1,20; 33:1,23).

Management responses to these constraints include allowing the students to (a) reimburse the USAF and walk away, (b) enter the Air National Guard (ANG) or the Air Reserve (AR), and (c) exceed the 1 year ceiling and see who stays. A method for reducing or eliminating the graduate delays is a definite need.

(b) AFA. The hand-off from Academy student management to the active duty USAF is orchestrated by MPC/DPCM (20:1-2). This is first a personnel process through which career field options are worked with Academy juniors and seniors. This process is facilitated through an annual career conference at which cadets explore personal job preferences against USAF openings and background in functional areas. As a result of those career choices, follow-on technical training is scheduled as required and entered into the personal data system (PDS). An interface exists with the USAF medical community to verify that all cadets meet physical standards for entry to active duty.
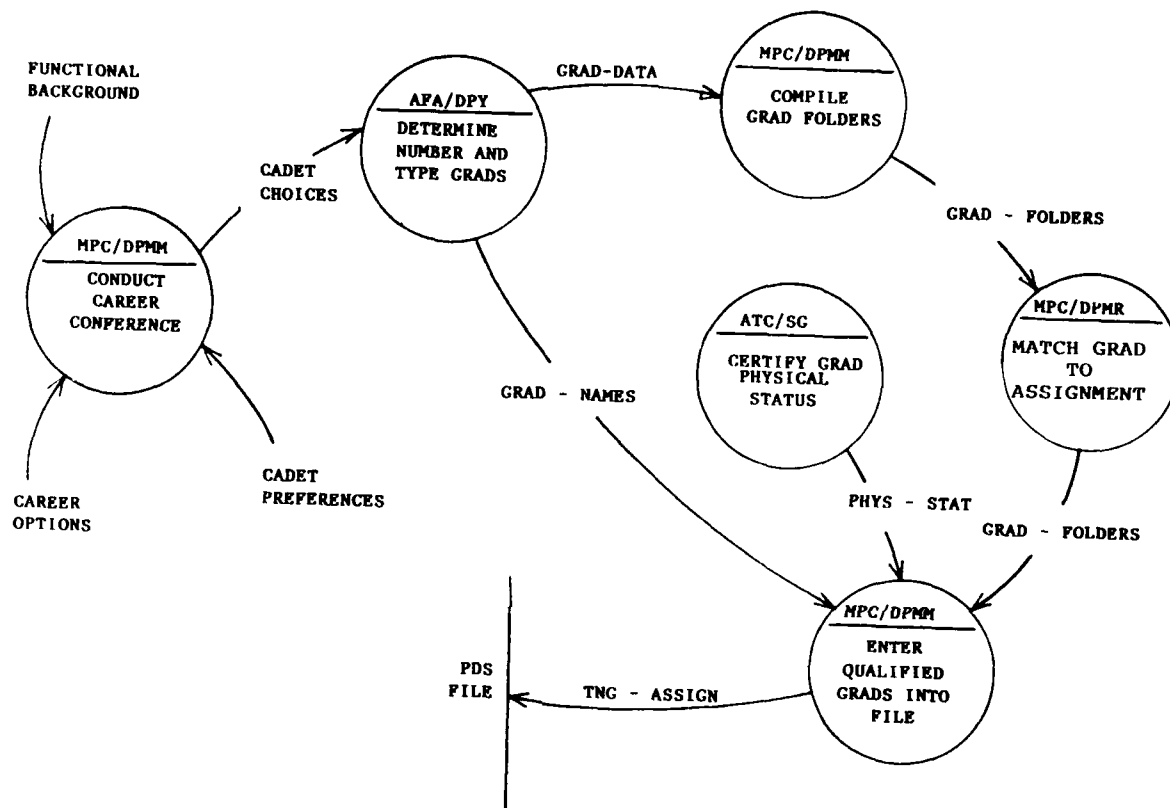
Figure 21. Initial technical training assignment: academy graduates.

(4) Resources Management. A unique resource that this category possesses is student scholarships. The scholarships vary from 2- to 4-year offerings for ROTC and are a full four years at the AFA. The Academy has a fixed number of 1,000 scholarships set by law. The ROTC has approximately 5,000, the number decreasing yearly due to DOD budget reductions. Scholarships can be for any university or can be restricted to only schools that have favorable tuition rates for the USAF.

Avenues of cost management include increasing the percentage of restrictive scholarships offered, negotiating with universities to expand the number of institutions with favorable fees (e.g., in-state rates for all comers regardless of residence), and increasing the percentage of 2-year scholarships. An unknown effect with these options is the impact on attracting quality personnel with the desired technical expertise.

A related management issue involves exchanging scholarship allocations between services. If one service has an excess in a given year, the potential exists for allowing another service in need to use them.

b. Skill Development. This training occurs after officers have completed initial skill acquisition training and education (18:1). When training is conducted at formal schools operated by ATC, the management is the same as that described for enlisted resident technical training.

The major distinctive activity in this training element is the operation of the Air Force Institute of Technology (AFIT). As an agency under the Air University, AFIT provides education to meet USAF requirements in scientific, technological, civil engineering, managerial, medical, and other fields as directed by AF/DPPE. This institute conducts degree granting education and professional continuing education programs (19:1).

(1) Requirement Management. Air Force DPPE establishes requirements and quotas which meet fixed USAF needs. Education-with-industry needs are derived from functional manager requests.

(2) Curriculum Management. Requirements for the award of degrees in the various fields of study are established by the faculty subject to approval of the AFIT Commandant, USAF need, and standards of accrediting organizations. An AU Board of Visitors performs an advisory function on an annual basis. The Board, composed of a select group of eminent educators and senior industrial executives, evaluates curricula and instructional methodology.

(3) Student Management. Military Personnel Center establishes procedures for selecting qualified personnel for AFIT programs. Through a board process, MPC assesses the quality of military records for all applicants and selects students for AFIT attendance. The Personnel Center also controls the initial and follow-on assignments for completing officers. Those officers have to serve periods of directed duty assignments.

(4) Resource Management. Resident schools for Engineering, Systems and Logistics, and Civil Engineering are managed by AFIT. Additionally, AFIT conducts a Civil Institution Programs for attendance in courses of instruction provided by civilian universities.

7. Pilot Training.

In many respects, management of pilot and navigator training can be discussed synonymously as flying training (Fig. 22). The following narrative is from that perspective. Distinctions are noted here and in the subsequent section on navigator training.

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            ┌─────────────────────┐
            │ AF/DPPE & XOOT      │
            │ PILOT               │
            │ TRAINING            │
            │              2.2.1  │
            └─────────────────────┘
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┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ ATC             │  │ ATC             │  │ MAJCOMs         │
│ FLIGHT SCREENING│  │ UNDERGRADUATE   │  │ WEAPON SYSTEMS  │
│ TRAINING        │  │ FLIGHT TRAINING │  │ TRAINING        │
│        2.2.1.1  │  │        2.2.1.2  │  │        2.2.1.3  │
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┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│ INITIAL         │  │ MISSION         │  │ CONTINUATION    │
│ QUALIFICATION TNG│ │ QUALIFICATION   │  │ TRAINING        │
│        2.2.1.3.1│  │ TNG    2.2.1.3.2│  │        2.2.1.3.3│
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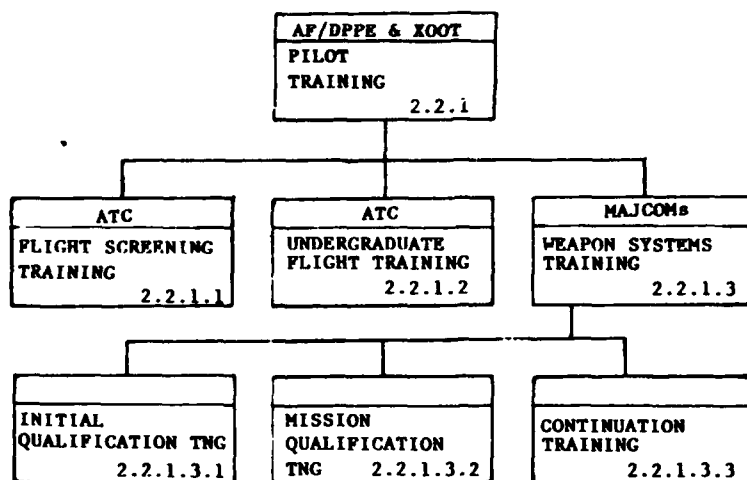
Figure 22. Pilot training.

Flying training, both initial and proficiency, is the most expensive of
all USAF training functions. Undergraduate officer aircrew training, con-
ducted by ATC, provides initial training for aircrew members. Weapon system
training provides initial qualification and proficiency training in a specific
aircraft/mission and is actually prepared, conducted, and administered by the
MAJCOMs.

        a. Requirement Management. Air Force DPPE and AF/XOOT formu-
late training policy guidance for ATC and the operational commands, respec-
tively. Forecasts on requirements from the MAJCOMs are supplied to these air
staff organizations and they in turn, within budget, allocate the required
training resources (personnel and equipment) for new and ongoing training
programs.

        b. Curriculum Management. Undergraduate pilot training (UPT)
is conducted at various ATC bases throughout the country. All pilot candid-
ates, except those with private pilot's license, have to successfully complete
a Flight Screening Program (FSP) before starting the actual undergraduate
training with ATC. The syllabus for the pilot undergraduate training is pre-
pared by ATC/DOTF. Most of the information used to develop the syllabus comes
directly from the various UPT bases with inputs from the MAJCOMs DOT offices.
Also, a course training standards conference is held annually to identify and
resolve any problems that may occur with recent graduates of the program.

Emphasis is placed on training organization and planning as well as the use of Instructional System Development (ISD) in the development of courseware. Instructional media include classroom, computer-assisted instruction (CAI), flight simulator, and inflight methods of instruction in a 1-year curriculum.

Weapon system training curriculum is prepared, conducted, and administered by MAJCOMs for initial qualification and proficiency training in a specific aircraft/mission. Air Force Regulation 60-1, Flight Management, provides the basic policy and guidance for the conduct of all flying training. It is the responsibility of the Air Staff to ensure all MAJCOM training programs are adequate. There are five levels of weapon system training: (1) initial qualification; (2) mission qualification; (3) basic qualification; (4) mission capability; and (5) mission ready. The MAJCOMs conduct the courses at Combat Crew Training Schools (CCTS), and at Replacement Training Units (RTUs) with the course of instruction approved by AF/X00.

A major problem in identifying and correcting any deficiencies in the curriculum in any of the flying training courses because the pipeline is long and change comes extremely slow. Deficiencies may not surface until 1 year after undergraduate training.

Resources such as fuel for additional flights and simulators that adequately demonstrate inflight conditions seem to be other prime constraints in making changes to the flying training system. Most constraints are due primarily to lack of funding.

    c. Student Management. Students chosen for pilot training are normally newly commissioned officers selected out of the ROTC, the AFA, or OTS. Training managers are responsible for such general administrative procedures regarding students as course entry requirements, attendance, and evaluation. Special procedures usually exist to identify those students whose performance is different from the average (high or low performers). To assure standardization, it is necessary to evaluate instructor proficiency by student and supervisor critiques.

    d. Resource Management. Funding always seems to be the overriding factor in any problem concerning resources. Possibly the best solution to effectively maximize resource investment is through the initial selection process of students for aircrew training. High attrition rates are extremely costly for the USAF. Therefore, the USAF needs a reliable method to weed out pilot candidates before they enter into UPT. Pilot selection is made using scores from the Air Force officer Qualifying Test (AFOQT), age of candidate, and results of screening boards such as used for selection into OTS and the AFA. The ANG, in addition to the just mentioned criteria, uses scores from a psychomotor (hand/eye coordination) test that are highly predictive of success in pilot training. Plans are being made to go to a Specialized Under-graduate Pilot Training (SUPT) program that identifies those candidates that are best qualified to go into the fighter/bomber vs. tanker/transport type aircraft before class selections are made for training in the undergraduate program.

To accomplish this program, not only will these criteria be used but computerized testing will provide a battery of information processing and personality tests to be used along with an interview process conducted by fully qualified instructor pilots.

At this time, the entire selection procedure is very fluid with the decision on exact selection methods pending the results of ongoing studies and policy deliberations.

8. Navigator Training.

As covered in the pilot training section, undergraduate navigator training (Fig. 23) is also conducted by ATC with weapon systems training conducted by the MAJCOMs. Recent improvements in the undergraduate training program have been made by going to a Specialized Undergraduate Navigator Training (SUNT) program. These changes are covered in the following discussion.
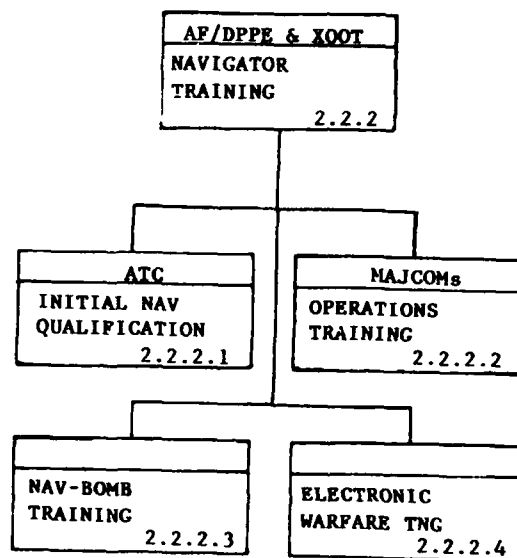

Figure 23. Navigator training.

a. Requirement Management. Air Force DPPE and AF/XOOT formulate training policy guidance for the navigator training just as with the pilot training. The MAJCOMs play a major role in providing forecasts on requirements to the Air Staff to provide this guidance.

      b. <u>Curriculum Management</u>. Just as with the pilot training, a course training standards conference is held to review all aspects of the navigator training programs when any changes are made to the syllabus.

The new Specialized Undergraduate Navigator Training (Fig. 24) is conducted by the 323rd Flight Training Wing at Mather AFB, California. After a brief period (65 days) of common (core) training, student navigators are placed into one of three specialized tracks: (1) fighter/attack/reconnaissance; (2) tanker/transport/bomber; and (3) electronic warfare officer.

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                                                                    WINGS
                                                                      ▲
         29%     32(97)*        35(132)*         28(160)*             │  F-15E
         FAR   ┌──────────┐   ┌──────────┐     ┌──────────┐          │  F/EF-111
       8(T-43) │INSTRUMENT│   │ TACTICAL │     │          │          │  FB-111
      11(T-37) │PROCEDURES│   │ LOW LEVEL│     │ ADVANCED │          │  F/RF-4
               │          │   │INTEGRATED│     │ AIRMANSHIP│         │  F-4G
               │ LOW LEVEL│   │ TACTICAL │     └──────────┘          │
               └──────────┘   └──────────┘                          │

                               19(145)*
                              ┌──────────┐
                              │   SAC    │                          B-1 (OSO)
     65*             51%       │   GRID   │      15(160)*            B-52
   ┌──────┐        TTB        └──────────┘     ┌──────────┐         AC/MC/
   │      │      61(126)*                       │  HI/LOW  │         EC-130
   │ CORE │     ┌──────────┐                    │INTEGRATED│         C-141
   │      │     │ ADVANCED │    19(145)*        │   OPS    │         WC/HC-130
   └──────┘   16(T-43)│PROCEDURES│  ┌──────────┐  └──────────┘       KC/WC/EC
    5(T-43)    0(T-37)└──────────┘  │   MAC    │                    RC-135
   4(T-37)**                        │ PRESSURE │                    E3-A
                                    └──────────┘

                                                   4(152)
                                                 ┌──────┐
                                                 │ TAC  │           B-1 (OSO)
         20%       83(148)*                       │ SYS  │           B-52
         EWT   ┌──────────────────┐              │ TAF  │           RC-135
             ┌─│ELECTRONIC WARFARE│             │ EWOs │           AC/EC/
      7(T-43)  │  OFFICER COURSE  │             └──────┘           MC-130
      0(T-37)  └──────────────────┘              18(166)*          FAR
                                                ┌──────────┐
                                                │STRATEGIC SYSTEMS│
                                                │ SAC/MAC EWOs │
                                                └──────────┘
                                                                      ▼
   *  TRAINING DAYS                                                 WINGS
   ** 2 (T-37) EFF FY 88
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Figure 24. Specialized undergraduate navigator training.

The syllabus for all three of these tracks is prepared by ATC/DOTN. Most of the information used to develop the syllabus comes from Mather AFB with inputs from the MAJCOMs DOT offices. The course training conference also identifies and resolves any problems that may be occurring and/or problems that can arise from changes in the program syllabus. Emphasis is placed on training organization and planning as well as the use of ISD in the development of courseware. Instructional media includes classroom, learning center, simulator, and aircraft.

c. <u>Student Management.</u> Students selected for navigator train-
ing are normally newly commissioned officers chosen from the ROTC, AFA, or
OTS. Training managers are responsible for such general administrative proce-
dures for students as course entry requirements, attendance, and evaluation.
Special procedures usually exist to identify those students whose performance
is different from the average performers (high or low performers). To assure
standardization, it is necessary to include instructor training programs and
ongoing evaluation of instructor proficiency by student and supervisor criti-
ques.

d. <u>Resource Management.</u> Funding again is an overriding factor
in any problem concerning resource management. Possibly the best solution to
effectively manage resources is through an accurate selection process of stu-
dents for navigator training. High attrition rates could be extremely costly
for the USAF.

9. <u>Ancillary Training.</u>

As discussed in the overview of the training system, ancillary training
is the major category of training which does not deal directly with either
military or job specialty required skills. This miscellaneous training cate-
gory which does not relate to any specific career field does, however, contri-
bute directly or indirectly to mission accomplishment. Disaster Preparedness
training is an example of a direct mission impact and drug abuse prevention
education is an example of indirect mission impact. Ancillary training is
managed by AF/DPP and MPC (6:1).

There are three types of ancillary training. The first type is training
that supports additional duties or functions, for example, chemical warfare
defense, self-aid and buddy care, base supply customer, and M-16 rifle train-
ing. The second type of training is a general classification that has a
broader audience, for example, operations security, protection from terrorism,
and driver improvement. Finally, there is an awareness type that includes
standards of conduct and firearm safety (6:2-6).

Ancillary training occurs primarily after arriving at one's first duty
station and at changes of duty station thereafter. Record of training is
usually recorded on AF Form 991, Ancillary Training Record, which is main-
tained at an individual's unit of assignment.

A requirement for ancillary training occurs when an Air Staff or MAJCOM
manager establishes a need and documents it via regulation. Before MPC con-
trol, this process led to the existence of more than 500 ancillary training
programs. Although these courses are not lengthy, the total annual require-
ment represented a significant diversion of personel from normal duties. In
the fall of 1977, the Vice Chief of Staff of the Air Force initiated a review
of ancillary training. As a result, an Air Staff review board has eliminated
or modified many ancillary training courses. Future reviews will refine the
approved list of courses by ensuring that the target audience is appropriate
for each course (55:22-3).

C. MISCELLANEOUS SUPPORT FUNCTIONS

1. Community College of the Air Force.

The CCAF is the only military institution in the United States that awards a college degree to enlisted personnel. This military institution combines professional military training and education and off-duty civilian education to award the Associate in Applied Science degree for successful completion of a program relating to an Air Force Specialty (AFS). The degree is awarded in five general areas: (1) Aircraft and Missile Maintenance; (2) Electronics and Telecommunications; (3) Allied Health; (4) Management and Logistics; and (5) Public and Support Services. This military institution is also an accredited member of the Southern Association of Colleges and Schools.

      a. Requirement Management. There are no students on the CCAF "campus." The CCAF only monitors and approves student course work via correspondence. Academic policies and requirements are developed by the CCAF Policy Council and approved by the Board of Visitors. Sixty-four hours of credit are required for the Associate degree.

      b. Curriculum Management. All US Air Force enlisted specialties are represented by the degree programs at CCAF. Enlisted personnel are automatically given college credit hours for basic military training, technical training, PME, skill level training, and OJT. College level courses make up the remaining curriculum. Program administrators at CCAF, who are AFS experts, decide if a college course fulfills the requirements for the degree plan in which the student is enrolled. Their decisions are based on research at civilian colleges, the Department of Education, and other sources regarding standard qualifications for a degree in a given subject.

      c. Student Management. Enlisted US Air Force personnel can register with CCAF at the education office on base. When the initial registration package arrives at CCAF, current credits are evaluated by a program administrator. A transcript is produced by computer and a counseling statement, called a Progress Report, is sent to the student. The base education office provides counseling while courses are being taken. Students have their base education advisor recommend them to CCAF for degree candidacy. The Dean of CCAF has final approval to grant a degree and the diploma is sent to the graduate's base education office.

      d. Resource Management. The CCAF was created as a recruiting tool in 1971, at a time when the USAF was looking for ways to resolve the shortage of competent recruits. Currently this shortage is not a problem. Therefore, CCAF is not high on ATCs list of budget priorities. Management at CCAF envisions a resurgence of recruiting problems in the next 15 years as the median age of the population increases, lending renewed importance to programs such as CCAF. Management at CCAF is concerned that the present lack of attention will leave CCAF technologically unprepared for the future.

2. Extension Course Institute.

The ECI is the US Air Force's only correspondence school and is accredited by the National Home Study Council. This institute offers nearly 400 nonresident courses falling into three categories. First, Career Development Courses for the specialty knowledge portion of OJT, and supporting the Weighted Airman Promotion System (WAPS). These courses have to be completed successfully for career advancement. Second, PME courses for both officers and airmen. Third, specialized courses for career broadening (10:1).

a. Requirement Management. Air Force DDPE reviews program requirements and goals, approves changes, and establishes enrollment criteria. Air Training Command works with MAJCOMs to ensure timely input of requirements for CDC materials to ECI supporting WAPS and OJT.

b. Curriculum Management. Course requirements are determined by the Curriculum Division and published in the ECI Guide for Authors. Preparing agencies (i.e., ATC technical schools) develop course content. Education specialists and editors at ECI make sure the standards in the Guide are met in developed texts and using a computerized management system. Finally, course materials are printed and sent to a warehouse at Gunter AFB for distribution.

c. Student Management. Depending on the type of course, a student's application is approved by either the base OJT or education office and transmitted on the Base Level Military Personnel System (BLMPS). The application flows to ECI where the student is automatically enrolled. At the warehouse, a mailing label is produced and matched with the correct course materials. The package is checked by quality control and then sent to the student. When course requirements are complete, a diploma or ECI Form 9, Certificate of Completion, is sent to the student. The institute updates personnel records upon course completion via Automatic Data information network (AUTODIN) to MPC and then to the local base CBPO.

The Registrar Branch at ECI performs the function for all of AU. The registrar also maintains student records and issues diplomas for all AU affiliated schools except AFIT.

d. Resource Management. Funding for ECI facilities and services comes from the AU budget. The staff of 130 people, largely civilian, provide continuity within the organization. The course materials division, which stores, assembles, and mails materials to students, is managed by a civilian contractor. Funds are being sought to purchase a new, mechanized, materials handling system to replace the old system, which is inadequate for ECIs needs.

The ECI is currently housed in eight separate buildings at Gunter AFB, Alabama. A new facility, set for completion in 1989, is being built at a cost of $8.8 million to house all ECI functions. Clearly this organization is receiving priority in the AU budget, emphasizing the trend toward nonresident courses as an alternative to more costly resident schools. Managers recognize

the need for increased automation and are continually pushing for upgrades to current systems. The managers at ECI express greater optimism about achieving their goals than do managers at other AU facilities.

3. Training and Performance Data Center.

The Training and Performance Data Center (TPDC) is a DOD total force support agency. The Center acts as a focal point and central repository for all DOD training and performance data. The Center was established in 1982 as a result of a Defense Science Board (DSB) report to the Secretary of Defense that recommended a center for all training related data, and began operation in 1984. The Center also develops training and performance related data bases and models for evaluating training and job performance. The Center's purpose is to facilitate communication and information exchange within the defense training community.

The TPDC extracts data from existing sources, both automated and hard copy. The Center stores and maintains all data using common data elements so that distinct and seemingly unrelated files can be merged to address complex training issues. Data are restructured for user needs and a report is provided to the user. All 22 currently operational databases are described in the Directory of Defense Training and Performance Data Center Databases and Extract Files, available through TPDC.

a. Requirement Management. The TPDC Steering Committee, chaired by the Assistant Secretary of Defense for Force Management and Personnel, provides recommendations to the Director of TPDC regarding program policy. The committee is composed of representatives of the armed services and other Defense Department members of the training community. Managers state that TPDC provides access to empirical data which can aid policymakers in assessing the impact of budget cuts on training programs. The Center also provides an audit trail for service occupations, which make it less likely that program mistakes will go unnoticed or be forgotten. TPDC managers stress the need for the Services to plan for the types of data they want TPDC to archive for future use.

b. Resource Management. The Defense Logistics Agency (DLA) provides funding for TPDC programs and staff. The TPDC staff consists of both civilians and active duty officers of all the services. Air Force Logistics Command (AFLC) oversees the facility budget. As a support agency, TPDC funds the work performed for users unless an exceptionally costly effort is requested. In such a case, TPDC negotiates with the user for the additional funding needed.

4. The Pipeline Management System.

The major automated system for USAF training management is the PMS. The system software is hosted on the USAF MPC's Honeywell mainframe located at Randolph AFB, Texas. The active duty, Air National Guard and Air Force Reserve components of the total force use PMS to support the training management of officer and enlisted personnel. The PMS specifically aids the requirement and student management activities (23:1-1). Over the 10 years since

its inception, PMS has evolved to contain nearly 600 on-line programs supporting training management and related personnel activities.

The system includes a course catalogue, requirements entry capability, class scheduling module, seat allocation and suballocation functions, a user confirmation process, and student accounting mechanism from entry to graduation. The student accounting subsystem provides statistical data as well as interfaces with other data systems to record training completions and eliminations, and notifies the CCAF of graduated students.

Additional capabilities exist for information reporting, class seat utilization, and actual production statistics. The PMS allows scheduling of multi-event training programs and on-line access to the central site database for the Air Staff, MAJCOMs, selected CBPOs, and selected training activities. The PMS also allows the system to flow training information to and from various data systems, including the Master Personnel Files (MPFs) (23:1-1 to -12).

Access to the PMS is restricted through the use of a user identification (ID) and a security record. Access is controlled by the PMS operator, MPC/DPMRPS. Each agency, with the need to access the PMS function, builds a unique security record. Some agencies may have more than one security record based on the diversity of their operation. A security record is created based on the types of actions needed to be performed while using PMS, including the functions controlled by the user, course owners and managers, or student accounting activity. The user ID, when combined with a password, is the "key" to the security record (23:1-4).

5. Occupational Measurement Center.

The USAF Occupational Measurement Center (OMC) at Randolph AFB, Texas is a pervasive and critical player in training management. Data produced by OMC provides an objective foundation for curriculum management decisions throughout the training system.

The occupational survey process is the source of this key management information. The process is grounded on subject-matter experts from the various career fields. Inputs from these experts are crucial in the development of job inventories which are used to survey task performance in the field. These surveys are administered worldwide to career ladder incumbents by base personnel offices.

Results from the surveys are captured in a computer data system and subjected to an initial automated analysis by the Comprehensive Occupational Data Analysis Program (CODAP). Occupational analysts subsequently correlate task performances with curriculum documents and assess comprehensiveness and accuracy. Conclusions are passed to training agencies via written report and oral briefings (4:--; 26:--).

Another important OMC function is career ladder training development. Rather than a traditional "course" perspective, OMC specialists develop integrated plans and improvements for training across career life cycles. This perspective provides a management view that transcends the multiplicity of training interests. The objective is to ensure that training is targeted at the appropriate times and with the best cost-effectiveness (25:15-19).

III. ASSESSMENT

A. OVERVIEW

One veteran manager of the USAF training system observed that the USAF doesn't manage its training and he wasn't sure if he could show value added if it did. This appraisal is at the same time both exceptionally unfair and remarkably accurate. Most individual elements of the system are very tightly managed. But training tends to be everyone's business and competing functional areas have severely balkanized the system creating inordinate coordination requirements to resolve constant disconnects and duplications. The following discussion describes the state of mission effectiveness and mission efficiency in USAF training management. Additionally potentials for improvement and constraints on improvements are identified.

B. MISSION EFFECTIVENESS

Effectiveness refers to how well mission goals are achieved. The description of goal achievement for each of the four major decision areas follows.

1. Requirements Management.

Overall, the management of the identification of numbers, types, and dates for training is well structured and managed. The annual screening process described in section IIA produces reasonably accurate and timely forecasts of training requirements. There are some significant problems as follows.

a. Excessive Requirement. Managers in MAJCOM after MAJCOM complain that only 25 to 35% of their formal technical training requirements are being satisfied. With that magnitude of shortfall, one would expect the operational functions to soon grind to a halt. But that doesn't appear to be happening. Training managers explain this inconsistency in three ways: (1) the most critical requirements are satisfied through the prioritization process; (2) much of the requirement is exaggerated by supervisors attempting to "game" the system; and (3) problems do not surface due to commanders' reluctance to acknowledge that they are unable to accomplish their mission for whatever reasons, including training deficiencies. Commanders and supervisors can always extend the workday to make up for delays due to training deficiencies, irrespective of impact on morale or retention. While a clear impact to the operational mission is yet to be demonstrated, the eclipsing of the training capability by the gargantuan need is clogging the decision data network.

b. Inadequate Acquisition Planning. No aspect of the training system has received as much attention in the last five years as deficiencies of training planning for new weapon systems. In 1983, Akman Associates found that training requirements (numbers and kinds) for new systems were late to need and generally inaccurate. Additionally, requirement reporting methods were lacking and responsible managers were insufficiently trained (28:2,IV10-3). In 1984, ASD/YW sponsored development of a manpower, personnel, and

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training systems model to address acknowledged deficiencies systems acquisition (31:1-1 to 1-2). In 1985, Matson confirmed the Akman findings (48:3,46-47). In 1987, the Air Force acquisition community identified continued deficiencies in accurate and timely determination of training requirements (54:A2-3, A3-1 to -4).

   c. **Pipeline Management System Exclusions**. While PMS is clearly one of the Air Force's significant innovations and successes, the system's benefits have not been extended to all possible applications. Notable targets for future inclusion would be Officer Accession Training and Undergraduate Aircrew Training.

  2. **Curriculum Management**.

  Individual elements of the training system are attending to course requirements fairly well. Obvious omissions, however, occur in the coordination of curriculum across training elements.

   a. **Subjective Pilot Performance Standards**. An anecdote repeated at the Air Staff, MAJCOMs, and ATC relates two recent fatal crashes in the field in which the pilots had "marginal" achievement records in initial flight training. Very shortly after inquiries were directed to the ATC commander, pilot attrition jumped to record levels. When asked what was changed, the managers responded, "only philosophy, not the syllabus." It appeared that the performance standards are sufficiently subjective to be strongly vulnerable to variations in management policy rather than tightly linked to objective job requirements. This appears to be a chronic issue (45:41-43).

   b. **Noninstitutionalized Basic Military Training Coordination**. The US Air Force has not, as an institution, established a basic military training core curriculum for all service members. While informal coordination occurs, it is not evident that enlisted and officer initiates are by design singing from the same song sheet.

   c. **Uncoordinated Enlisted Technical Training**. Coordination across common specialized skills areas in the MAJCOMs appear to be the most serious deficiency of curriculum management. Supervisors have little specific data on what newly assigned personnel are already trained; additionally, specific training tasks vary among supervisors at even the same job location. Lack of standardization has historically been a recurring problem (32:70- 72; 27:4-2 to 4-5). Also, managers complain that the STSs are not detailed enough and the proficiency levels are vague, leading to variations in interpretation. Significant numbers of individual technicians in some elements of the force voice dissatisfaction with the resultant skill training (34:3). The MAJCOMs have established at least a thousand formal training courses to bolster recent ATC graduates' initial capability (51:50). More critical is the observation that tasks required only in war time are not clearly understood at any of the continental MAJCOMs.

3. Student Management.

The student management appears to be the best managed function for the USAF at large. The Pipeline Management System, described in Section IIG, deserves maximum credit. Areas where improved effectiveness is needed are as follows:

a. Inadequate Flight Candidate Selection. Attrition rates in excess of 30% point toward the need for improved aircrew candidate selection (38:6). At a time when the aircrew force is hemorrhaging from defections to the civilian airlines, the Air Force can ill afford a leaky pipeline (40:1,30). Additionally, flight training commands the highest resource investment per student among all the types of training. Significant losses of aircrew students consequently result in a serious drain of critically scarce training resources.

b. Off-Target Officer Selection Measures. The selection of prospects for Officer Initial Skill Training programs is heavily weighted on academic measures which predict success in college. The measure of merit of the USAF investment, however, is more than attainment of a university diploma. The desired return on this USAF investment is outstanding job performance and long term retention as an officer. A selection system is needed that can identify the potentially productive and dedicated leader.

4. Resource Management.

Resource management is one of the weakest areas in the assessment. The fractionalization of the system severely works against any attempt to coordinate resource investment.

a. Investment Accounting Shortfall. A major and chronic USAF problem is the inability to capture and articulate the total cost of its training operations (50:2-44). The highly visible formal training school houses cannot show the impact of budget cuts. There is unanimous recognition that such cuts simply transfer the training burden to the operational units, draining resources from readiness capability. Nonetheless, there is no objective data to present to Congress demonstrating that pushing on the formal schools side of the training balloon causes a bulge on the operations side. There is some indication that units are increasingly using their own resources to fund and contract for unmet training requirements. There is, however, no systematic data collection to verify this diversion of funds.

b. Late-to-Need Training Equipment. The chronic acquisition deficiencies discussed in the Requirement Management section just mentioned also are at play in the resources arena. The definition and procurement of training equipment for new and modified systems are consistently late (50:2-31). This deficiency results in delayed or incompletely trained maintenance and operator technicians, which impacts on mission readiness. This deficiency also impacts the training of aircrews due to delayed flight training simulation (47:452).

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c. Fragmented Flying Training Resources. Development of the various components of aircrew training is disjointed. There is no systems approach to develop the best method or media to instruct a task. The classroom lecture, CAI, part-task trainers, weapon systems trainers, flight simulators, aircraft, and ranges all have a developmental life of their own with little planned integration.

C. MISSION EFFICIENCY

Efficiency refers to the amount of resources required to accomplish the mission. The less the resources (given the same mission output), the more efficient the organization. The description of efficiency for each of the four major management activities follows.

1. Requirement Management.

The Pipeline Management System and other existing data systems go a long way to eclipse the "green eye shade" process existing prior to the 1980s. While the requirement data flow is now exceptionally labor conserving, some aspects of the management process are still inefficient.

a. Excessive Requirement Processing. As described in paragraph IIB1a., the voluminous requirements for MAJCOM technical training significantly exceed the capability to train. A tremendous effort at all management levels is being expended to capture, validate, and process requirements for which only a third, at best, will actually be satisfied. This effort appears to be a serious waste of attention.

b. Bureaucratic Layering. Repeated reviews of the same requirements occur from unit level to base to MAJCOM. Student load information receives several reviews at MAJCOMs and Separate Operating Agencies and several within the Air Staff. The value added to these reviews is questionable considering inconsistent data are still surfacing at DOD prior to forwarding to Congress.

2. Curriculum Management.

a. Duplicative Course Catalogues. A listing of formal courses is contained in the PMS data base and in the AFR 50-5 (7:--) publication. Also, there is not a one for one match between the two catalogues, PMS being the more inclusive course listings and AFR 50-5 containing background descriptions that simply cannot fit into available PMS space.

b. Uncoordinated Employment of Training Technology. Computer-assisted instruction appears to be applied haphazardly across the USAF. Incompatible systems abound and managers are concerned that efficiencies cannot be realized through cross exchange of developed courseware.

3. Student Management.

For the bulk of the training elements, the control and tracking of students is well structured under the Pipeline Management System data network. Some notable exceptions follow.

a. <u>Outdated CCAF Transcript Processing</u>. At CCAF, managers express concern over the lack of automation. Computer assistance with the manual assessment and inspection of student transcripts could reduce registration turnaround time from 12 days to 5 days.

b. <u>Uncoordinated Officer Recruiting</u>. A management opportunity exists for some organizational synergism in Officer Initial Skill recruiting. Several agencies identify potential candidates for officer service. Better use of the candidates can be made if prospect exchanges could be formalized. For example, an ROTC nominee may want to associate with the military but is not selected as a scholarship recipient for either competitive or medical reasons. This prospect could be referred to the Air Guard, Reserve, or the civil service communities. A means to individually track and network prospects would facilitate that potential synergy.

4. <u>Resource Management</u>.

a. <u>Excessive OJT Paper Burden</u>. The administrative load of maintaining OJT records appears inordinate. In addition to and unit supplemental documentation needs to add to the supervisor's record keeping chores. Air Force Regulation 50-23 alone addresses approximately 12 separate documents or forms to be used for OJT management. Although not all the forms are required on each student, the trainer still has to juggle which to use, when to use, and how to use the components of that excessive paper mill.

b. <u>Antiquated ECI Materials Handling</u>. The mechanized process for storing and retrieving ECI study materials is sorely outdated. While distribution time goals are being met, the forecasted increase in materials handling will overcome the system within the next 5 years. The cost of maintenance to keep the system operational is also becoming prohibitive.

D. IMPROVEMENT POTENTIALS

The shortcomings identified in the effectiveness and efficiency parts of this assessment signal potentials for improvement in the operations of the training management system. Potential improvements promise lower costs, fewer participants, and/or increased system responsiveness are listed below.

1. An algorithm to constrain and objectively prioritize training requirements in the MAJCOMs could both reduce the personnel energy expended and enhance the requirement screening responsiveness.

2. Models and data flows to improve Manpower, Personnel and Training (MPT) issue leverage, accuracy, and timeliness in acquisition planning would directly impact mission readiness with new systems.

3. Systems for accurate officer and pilot selection and classification would reduce recruiting efforts and pipeline through-put.

4. Development of job specific task base lines for military, OJT, and aircrew instruction would ensure warfighting competencies and dampen much of the inefficient management perturbations in instructional goals.

5. Objective measures for performance assessment for rated and enlisted personnel would enable managers to demonstrate impacts from changes in training system operations and increase training effectiveness.

6. A system to quantify, capture, and articulate total resource costs for training would support a resource conservative stabilization in the training system across the USAF.

7. Consolidation and automation of OJT record keeping would decrease supervisor diversion of effort and increase quality time with apprentices.

8. A method to automate the capture and evaluation of transcripts at AFIT, AU, and ECI would reduce personnel time devoted to the task and increase responsibilities of student selection and qualification.

9. Centralized data system for recruiting prospects could reduce the officer recruiting pool size and recruiter prospect development time.

Before charging off to set the Air Force training world right, there are a few serious obstacles to reform that have to be acknowledged. The next section on change constraints is a must reading for the serious change agent.

E. IMPROVEMENT CONSTRAINTS

1. System Fractionalization.

Interviewee after interviewee complained about the lack of management coordination across the many training fiefdoms. With so many diverse but interrelated interests playing in the training arena, an inordinate amount of attention is required to effect coordination. This multifaceted division of training responsibility has evolved over many years and has long been recognized as a chronic management issue (55:22-15). Many innovations in training management will have to be employed in such a way as to cope with this environment of multiple and sometimes conflicting interests.

2. Environmental Ambiguities.

a. Unpredictable Production Goals. As discussed in the overview of the training system, the targets for training production are closely intertwined with the authorized force structure. That structure is extremely vulnerable to buffeting by changing national priorities. New presidential

administrations, marginal changes in congressional alignments, arms negotiation posturings and outcomes, and economic volatilities, to mention a few effectors, translate into wide variations in requirements. This instability is the normative environment for training managers and forces myopic reactions to constant near term changes, detracting attention from measured long term improvements. Proposals for system improvements must be engineered to mature in that temporal environment.

   b. Vague Assessment Measures. Managers are unable to demonstrate a clear link between training innovation and improved job performance. Objective measures of merit are confined to school achievement. Formalized on-the-job measures tend to be subjective ratings that are so universally inflated that no useful variance occurs. This inflation accounted for the wry observation that the impact of training management cannot be shown. Proposed training management improvements must vie for coveted resources with that serious handicap.

   3. Restrictive Resources.

  During the period of study interviews, it was apparent that managers were heavily occupied reacting to resource cuts. Any proposed improvements to the training management system must be pursued with a realistic understanding of the austere environment in which these managers operate. Improvement proposals must be prioritized and executed frugally over several years through carefully crafted planning. Efficiencies that can free resources for further improvements must be courted early. The irony is that, in such austere times, the training community needs, more than ever, the new systems and methods to compensate for personnel reductions, to demonstrate training effectiveness, and to show operational impact of resource cuts.

IV. SUMMARY

  The USAF training management system is expansive, diverse, and subject to dynamic changes. Managers of the nine major training elements respond with dedicated effort and innovative methods. The occupational survey program and the Pipeline Management System provide order and direction in a potentially chaotic system.

  The requirements for training, however, eclipse the system's capability to respond. Managers are constantly playing catch-up to new weapon system training requirements and equipment needs. Specific task requirements for jobs are still too subjective and nonstandard to drive precise training objectives. Selection measures for high value personnel require added refinement to reduce costly attrition.

  Additionally, fragmented management responsibility leads to inefficient and uncoordinated training development. Managers lack objective data to effectively direct training resources across the Air Force and to convincingly demonstrate Congressional funding impacts.

Opportunities exist for system improvements that lower cost, reduce personnel, and increase responsiveness. Models, algorithms, and data bases for requirement identification and prioritization, personnel selection and classification, and training effectiveness evaluation are strongly needed. Automation of outdated processes in OJT management, transcript evaluations, correspondence materials handling, and applicant pool coordination would also improve system effectiveness and efficiency.

This first part of the Training Management 2010 Study creates a foundation for the second phase by providing a comprehensive review of the in-place training management system. The detractors to effectiveness and efficiency and the complimentary potentials for improvement identified in the system assessment provide opportunities for improvement in the future training management system of 2010.

Those improvement potentials will be merged with the identification of pervasive future trends impacting the training system. Some future trends will ameliorate or exacerbate the detractors. Still others will create even new problems for training managers of the next century. The goal of the second study phase is to develop a future training management architecture that realizes the potentials for improving the existing system while accommodating to the future trends.

This ambitious effort will be forced to the plausible by the requirement for a realistic technology roadmap that achieves the ideal architecture. The challenge will be to accurately chart that roadmap in light of the identified constraints of system fragmentation, environmental ambiguity, and restricted resources.

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AECP   Airman Education and Precommissioning Programs
ACSC   Air Command and Staff College
ACT   Academy Cadet Training
AF   Air Force
AFA   Air Force Academy (also USAFA)
AFB   Air Force Base
AFIT   Air Force Institute of Technology
AFLC   Air Force Logistics Command
AFMPC   Air Force Military Personnel Center
AFOOC   Air Force Officer Orientation Course
AFOQT   Air Force Officer Qualifying Test
AFR   Air Force Regulation
AFROTC Air Force Reserve Officers' Training Corps
AFS   Air Force Specialty/Air Force Station
AFSC   Air Force Systems Command
AIC   Academic Instructor Course
AMS   Academy of Military Science
ANG   Air National Guard
APDS   Advanced Personnel Data System
AR   Air Reserve
ATC   Air Training Command
AU   Air University
AUCPD   Air University Center of Professional Development
AUTODIN Automatic Data Information Network
AWC   Air War College
BLMPS   Base Level Military Personnel System
BMT   Basic Military Training
CAI   Computer-Assisted Instruction
CBPO   Consolidated Base Personnel Office
CCAF   Community College of the Air Force
CCTS   Combat Crew Training School
CDC   Career Development Course
CEMU   Commissioning Education Memorandum of Understanding
CODAP   Comprehensive Occupational Data Analysis Program
CSAF   Chief of Staff of the Air Force
CTS   Course Training Standard
DCS   Deputy Chief of Staff
DLA   Defense Logistics Agency
DOD   Department of Defense
DOT   Department of Training
DSB   Defense Science Board
ECI   Extension Course Institute
FTD   Field Training Detachment
FY   Fiscal Year
FSP   Flight Screening Program
ISD   Instructional System Development
JQS   Job Qualification Standards
GPA   Grade Point Average
GPO   Government Printing Office

HQ	Headquarters
HPOIC	Health Professions Officer Indoctrination Course
HSD	Human Systems Division
ID	Identification
JQS	Job Qualification Standard
LMDC	Leadership and Management Development Center
MAC	Military Air Command
MAJCOM	Major Command
MIMSO	Military Indoctrination for Medical Services Officers
MMTR	Military Manpower Training Report
MPC	Military Personnel Center (also AFMPC)
MPF	Master Personnel File
MTI	Military Training Instructor
NCO	Noncommissioned Officer
NCOA	NCO Academy
NCOLS	Noncommissioned Officer Leadership School
NCOPC	Noncommissioned Officer Preparatory Course
OJT	On-The-Job Training
OSR	Occupational Survey Reports
OMC	Occupational Measurement Center
OTS	Officer Training School
PCS	Permanent Change of Station
PDS	Personnel Data System
PME	Professional Military Education
PMS	Pipeline Management System
PPBS	Planning, Programming and Budgeting System
PTT	Program Technical Training
ROTC	Reserve Officers' Training Corps
RQTS	Requirements
RTU	Replacement Training Unit
SAC	Strategic Air Command
SAT	Scholastic Aptitude Test
SOS	Squadron Officer School
STS	Specialty Training Standard
SUNT	Specialized Undergraduate Navigator Training
SUPT	Specialized Undergraduate Pilot Training
TAC	Tactical Air Command
TPDC	Training and Performance Data Center
TDY	Temporary Duty
TNG	Training
TPR	Trained Personnel Requirement
TQR	Training Quality Report
U&T	Utilization and Training
UES	Universal Energy Systems, Inc.
UGT	Upgrade Training
UPT	Undergraduate Pilot Training
USAF	United States Air Force
UTW	Utilization and Training Workshop
WAPS	Weighted Airman Promotion System

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AFMPC/DPMRPQ3	CMS Alvin Leblanc Superintendent, Tng Mgt Devel Sec	(512)652-5945 (AV 487)
AFMPC/DPMRPS	TSgt Mike Fassold Lead PMS Analyst	(512)652-2255/2522 (AV 487)
AFMPC/DPMRPS2	Capt Don Reichman Chief, PMS	(512)652-2255 (AV 487)
AFMPC/DPMY	Maj Russ Seaman Chief, Plans & Research Branch	(512)652-3223 (AV 487)
AFMPC/DSP2	Ms Kathy Null Computer Systems Analyst	(512)652-3324 (AV 487)
AFROTC, Det 840A/CC	LtCol Anthony Zambelli Professor, Aerospace Sciences	(512)691-4624
AFSC/XTH	Col Joe Milligan Director, Combat Support	(301)981-2366/67 (AV 858)
AFSC/XTHS	Capt Frank Vacarro Staff Officer	

AFSC/SDO	Maj Jim Clark Command Liaison Office	(301)981-6411 (AV 785)
ASD/ALH	Maj Phil Irish Chief, Training Division	(513)255-9747 (AV 785)
ASD/ENET	Mr Jim Brown Chief, Tng Sys Analysis Grp	(513)255-4407 (AV 785)
	Maj Conrad G. Bills Chief, Aircrew Tng Systems	
ASD/YWB	Mr George Dickerson Chief, New Business	(513)255-7177
ATC/DOPA	Maj Rick Perry Operations Analysis Division	(512)652-4969
ATC/DOTF	Maj Edward Houser Pilot Syllabus Manager	(512)652-6341 (AV 487)
	Maj Mike Thomas Air Operations Officer	(512)652-6341
ATC/DOTN	Maj Ronald Poland EW Training Manager	(512)642-5559 (AV 487)
ATC/TTID	LtCol Richard Hetzel Chief, Data Systems Support Div	(512)652-4470 (AV 487)
ATC/TTIDI	Mr John Workman Chief, Management Sys Design Br	(512)652-4470 (AV 487)
ATC/TTIDI	Mr Chuck Hansen Lead SMART Analyst	(512)652-4470 (AV 487)
ATC/TTPP	Mr Keith Cook Chief, Programs Division	(512)652-2193
ATC/TTPPR	Mr Ernie Gohike Chief, Resident Training Branch	(512)652-2811
ATC/XPCA	Dr Frank Schufletowski Chief, Applications Division	(512)652-6264 (AV 487)
AU/CADRE	Col Thomas Tilghman Vice Commander	(205)293-7975 (AV 875)
AU/XP	Col Charles Colvin DCS, Plans and Programs	(205)293-5160 (AV 875)

AU/XPXP	LtCol Casleton Budget and Student Load	(205)293-5156 (AV 875)
	Capt Burke Staff Officer	(205)293-2228 (AV 875)
AU/XPXX	LtCol Lawrence Little Chief, Strategic Plans Division	(205)293-5160 (AV 875)
AU/XPZ	Mr Tom Renckly GS-12, Curriculum Evaluation	(205)293-5159 (AV 875)
CCAF/CC	Col Rodney Cox President	(205)293-7847 (AV 875)
ECI/EDX	Maj Kathryn Brown Chief, Plans and Programs	(205)279-4386 (AV 446)
HSD/YAT	LtCol Mike Dickinson Mgr, Adv Tng Sys Program Office	
MAC/DOT	Col Don Johnson Director	(618)256-3625 (AV 576)
MAC/DOTT	LtCol Tom Kahley Chief, Tactical Training	(618)256-3625 (AV 576)
MAC/DOTT	Maj Fred Madsoen Chief, Helicopter Tng Branch	(618)256-3625 (AV 576)
MAC/DPAT	CMSgt Warren Rogers Superintendent, Educ & Tng	(618)256-4143 (AV 576)
MAC/LGMTB	CMSgt Walker Chief, Tng Mgt & Support Br	(618)2564787 (AV 576)
	MSgt Brown Enroute Tng Mgr	
Nat'l Def Univ	Capt (USN) French Chairman, Dept of Org & Pers Mgt	AV 475-1865
OASD (FM&P)	Mr Gary Boycan Training Policy Directorate	(202)697-4992 (AV 227)
	LtCol Bob Croach Simulation and Training Systems	(202)695-0975 (AV 225)
OUSD (R&AT)	LtCol Mike Birdlebough Dep Dir, Accession Policy	(202)695-9777 (AV 225)

SAC/DOTPI	Maj Glen Pettiet Chief, ISD Branch	(402)294-2674 (AV 271)
SAC/DOTTA	LtCol Larry Guinn Chief, Aircrew Training	(402)294-4410 (AV 271)
SAC/DPAT	Capt Mary Daugherty Chief, Training Division	(402)294-4059 (AV 271)
SAC/LGMQT	SMS Ron Bosworth Chief, Maintenance Tng Branch	(402)294-2229 (AV 271)
SAC/XPI	Maj Mark Stanton Office of Long-Range Planning	(402)294-6767 (AV 271)
Sr NCO Academy	Billy Hunter Education Advisor	(205)279-3113 (AV 446)
TAC/DOTF	Maj Slayton Fighter Training	(804)764-7746 (AV 574)
TAC/4444 Ops Sq OLAE	LtCol Jon K. Foster Commander	(804)764-5351 (AV 574)
TAC/4444 Ops Sq	Maj William F. Ritter Team Chief	(513)255-4053 (AV 785)
TAC/DOTS	LtCol Wilcox Chief, Tng Systems Division	(804)764-7785 (AV 574)
	Capt Linda Wiekhorst Staff Officer	(840)764-7785 (AV 574)
TAC/DPATT	CMS Donald N. Hiemstra Section Chief	(804)764-3222 (AV 574)
TAC/LEGT	LtCol Norsworthy Maintenance Training	(804)764-2102 (AV 574)
	Capt Frank Bruno Maintenance Training	(804)764-3016 (AV 574)
TPDC	Col Bobby Tindall Deputy Director	(305)281-3604

APPENDIX B - INTERVIEW GUIDE

Interviewee:
Position/Title:
Address:

Interviewer:
Office Symbol:
Phone:
Date:

INTERVIEW GUIDE

Introduction: HSD - HSD/XR - Study

1. (2.1) What is your office's part in the management of Air Force training?

    — military
    — flying
    — technical
    — professional
    — other

    — requirements
    — resources
    — curriculum
    — evaluation
    — planning
    — other

2. (2.2.1) What training management decisions does your office routinely handle? How are they used; where do they go?

    — Timelines
    — Criticality
    — nonroutine types

3. (2.2.2) What kinds of data do you use in your decision making? where does it come from? By what media?

    purpose
    content
    accuracy
    timeliness
    criticality to your decisions

4. (2.2.3) What are the other offices which interact with you in the management of training? How?

5. (2.4.1) Is the information and decision flow working well? Can it be improved?

6. (2.4.2) What are the constraints on changes in the training management system?

7. (6.1) What changes in the Air Force do you see affecting training managment?

    near term   policy
                             operational
                             requirements
                             events

    far term

8. (6.2) What impact do you see on your management of training from:

    ___ shrinking manpower pool?
    ___ increased lower-socio-economic assessions?
    ___ dispersed operations?
    ___ computer-based instruction?
    ___ expanded use of dispersed operations?
    ___ increased hiring of pilots by the airlines?
    ___ multi-AFS training
    ___ increased automation/technology in the workforce

9. (2.1) What other offices would be useful for us to contact.

(6.4.1) What R&D is your organization (doing-sponsoring-requesting) that relates to training management?

                             technologies
                             systems
                             support

(6.4.2) What training management issues (does or would) this research address?

(6.5) What is the intended impact of this R&D on the particular issue?

                             What will be
                             What will do
                             How do it

APPENDIX C – FLOW DIAGRAM

MAJCOM REQUIREMENTS PROCESS